User's Manual

R-Drive Image

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I R-Drive Image

R-Drive Image is unique and powerful drive image software. It creates drive image files on-the-fly, that is, without stopping Windows. Such images may be stored anywhere including various removable media. It compresses image data with variable compression level to save free space. It also restores such images on the disks on-the-fly, except system partitions. **R-Drive Image** creates special startup disk (a startup CD/DVD disc, USB removable storage device, or 6 floppy disks) to restore system partitions. It connects images as virtual disks to copy only certain files from the images. It also directly copies an entire disk to another - no time spent for file structure scanning.

System integrators and computer assemblers can use **R-Drive Image OEM kit** to create system recovery disks to include them with their fully assembled computer systems.

Note: The current version has a limited support for dynamic disks or other non-MBR/GPT partition layouts. See **Support for Various Disk Partition Schemes and File Systems** for details.

The **R-Drive Image Features** topic tells more about **R-Drive Image**.

The **Disk Actions** chapter explains disk actions such as:

- **Create an Image** of a partition, logical disk, or entire hard drive
- **Restore Data from an Image**
- **Copy Disk to Disk** to make an exact copy of one disk on another
- **Connect an Image as a Virtual Logical Disk** **(read-only)**
- **Disconnect Virtual Logical Disks**
- **Check an Image File** to check an existing image file

The **RAIDs, and Various Disk and Volume Managers** chapter explains how to perform disk actions with various compound volumes such as:

- **Windows Software RAIDs, Spanned, and Other Volumes**
- **Windows Storage Spaces**
- **Mac RAIDs**
- **Linux Logical Volume Manager Volumes**

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- **Create Startup Disk**
- **Restoring Data to a System or Other Locked Disk**
- **Create an Image Using the Startup Disks**
- **Disk to Disk Copy Using the Startup Disks**

The **Scheduled Actions, Command Line Operations, and Scripting** chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- **Scheduler and Unattended Actions**
- **Scripting and Command Line Operations**
- **Backup sets**

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The Technical Information chapter gives technical information on

- Logging
- Creating consistent point-in-time backups
- Support for Various Disk Partition Schemes and File Systems
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The R-Drive Image OEM kit chapter explains how computer system integrators can create system recovery disks for their systems

- Create a Master Image
- Create Startup Media

Follow this link to obtain R-Drive Image Contact Information and Technical Support

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1.1 R-Drive Image Features

R-Drive Image is unique and powerful drive image software. It creates disk *images*: files that contain exact, byte-by-byte, copies of hard drives, partitions, or logical disks. Such images may be stored in any location: other hard disks or various removable media, such as CD-R(W) and DVD discs, Iomega Zip or Jazz disks, including network drives. At any time, data from such images may be restored on their original disks or on any other partitions or even on drive's free space.

Note: The current version has a limited support for dynamic disks or other non-MBR/GPT partition layouts. See Support for Various Disk Partition Schemes and File Systems for details.

Using **R-Drive Image**, you can completely restore your system immediately after heavy data loss caused by an operating system crash, virus attack, or hardware failure. You can also use **R-Drive Image** for mass system deployment: if you need to setup many identical computers, you can setup manually only one system, than, using **R-Drive Image**, you can make an image of the system, and deploy it on all other computers, saving your time and cost.

You can copy a hard drive, partition, or logical disk directly to another one. Such copying is much faster than traditional file by file copying, as no time spent for file structure scanning.

If you need to restore only certain files from an image, you can connect that image as a read-only virtual disk and copy those files directly from the image using Windows Explorer or any other file utility.

If you are a system integrator, consultant, or computer assembler, you can use R-Drive Image OEM kit to create system recovery disks to include them with your fully assembled computer systems.

R-Drive Image features:

- A simple wizard interface – no in-depth computer management skills are required.
- Commands in the shortcut menu to perform some disk actions, like restoring data from an image file and connecting an image as a virtual disk directly from Windows explorer.
- Image files are created on-the-fly, no need to stop and restart Windows. All other disk writes are stored in a

cache until the image is created.
- Images can be created for storage devices with removable media
- Images can be burned on CD/DVD recorders directly from the program
- Image data can be compressed to save free space.
- Image files can be stored on removable media. Support for USB 2.0 and 3.0 devices in the startup mode.
- Images can be split into several files to fit the type of the storage medium.
- Image can be created incrementally and differentially.
- Image files can be password-protected and contain comments.
- Support for various non-MBR/GPT partition layouts and file systems. See **Support for Various Disk Partition Schemes and File Systems** for details.
- Support for RAIDs, and various disk and volume managers, such as Windows Storage Spaces, Apple RAIDs, and Linux LVM.
- Data from an image are restored on-the-fly, except on a system partition. Data to the system partition can be restored either by restarting **R-Drive Image** in its startup mode directly from Windows, or by using specially created startup disks.
- Special startup disks (a startup CD/DVD disc, USB removable storage device, or 6 floppy disks) can be created to restore data to a system partition. Such disks can be used to perform basic disk imaging operations on Mac computers with some restrictions.
- The file system of the restored disk can be converted to another one (FAT16 to FAT32 and vise versa.).
- Data from an image can be restored on a free (unpartitioned) space on any place on a hard drive. The size of the restored partition can be changed
- Data from an image can be restored on other existing partitions. **R-Drive Image** deletes such partitions and restores data on that free space.
- An entire disk can be directly copied on another one.
- An image can be connected as a read-only virtual drive and its content can be viewed and copied.
- An image can be checked for its integrity.
- Support for **S.M.A.R.T.** warnings.
- A built-in scheduler automatically starts disk actions at scheduled times/events.
- Scripts can be created for frequent or unattended actions. Scripts are executed from a command line and can be included in any command file.
- Support for backup sets. A backup set is a set of files (usually a file for a full image of an object and a number of its incremental/differential backups) which **R-Drive Image** treats as one unit. Backup sets are used to flexibly control the parameters of complex backup tasks such as a total size allocated for the image files, number of image files to keep, and time for which the data will be kept.
- **R-Drive Image OEM System Recovery Media** creation: special startup disk(s) that may be used to restore a computer system after a complete failure when it requires a complete fresh setup (system recovery disks).

  Note: You need to purchase an OEM registration key to activate this feature.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and**

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List of Hardware Devices Supported in the Startup Mode and another useful technical information.
Follow this link to obtain R-Drive Image Contact Information and Technical Support

1.2 Contact Information and Technical Support

To obtain the latest version of **R-Drive Image**, go to:
Product Site: http://www.drive-image.com/
Sales Department: sales@r-tt.com

The **R-Drive Image** Technical Support Team is available 24 hours a day, seven days a week, and has an average e-mail response time less than 4 hours.
Tech. Support: support@r-tt.com
You may send a support request form from http://www.r-tt.com/Support_request.html.

Drive Imaging & Backup FAQ: http://www.r-tt.com/Drive_Imaging_Backup_FAQ.shtml
R-tt Forum: http://forum.r-tt.com

The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

1.3 R-Drive Image Registration

You need to obtain a registration key to activate the **R-Drive Image** trial version. You may obtain this key online at the **R-TT web site**.
The registration keys are sent to customer e-mail boxes immediately after purchase.
With the purchase of a new **R-TT** software product, you receive one year of support services that includes technical support, customer support and all upgrades and new releases for your product during that term. When your 1-year support service expires, you will need to renew that support at a discounted price to continue receiving support services. The renewal support purchase will extend your support by 1-year from the date of its expiration.
More details are on the **Buy On Line** page (`http://www.r-tt.com/BuyOnLine.shtml`) at the **R-TT web site**.

To obtain a registration key,

- go to the **Buy On Line** page at the **R-TT web site**.

To register with a registration key,

1 **Click the Register button on the Trial Version panel**
The **Please register R-Drive Image** message will appear.

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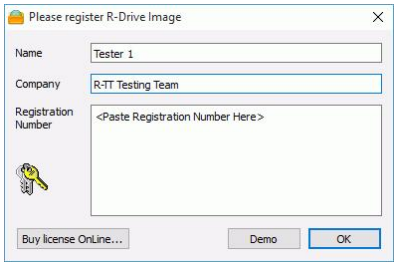

2 Enter the registration information and click the OK button

The panel will change its name to **Registered Version** and show the registration information.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

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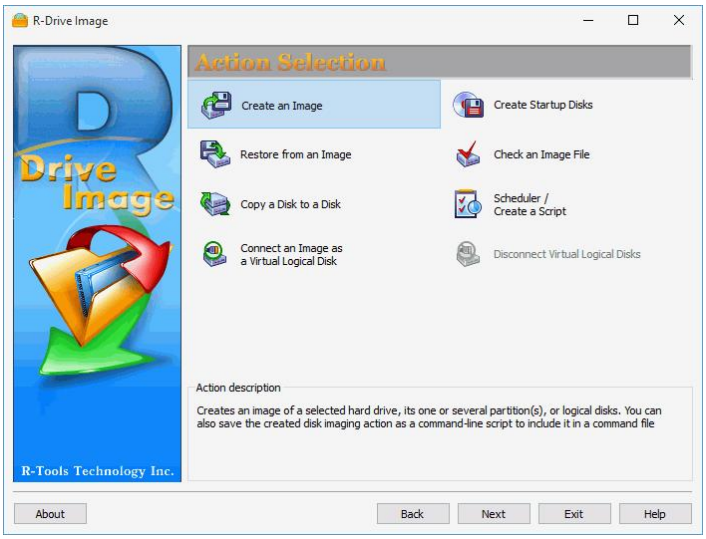
II Disk Actions

This chapter explains how to perform disk actions. Each action starts from the **Action Selection** panel.


R-Drive Image
Action Selection
Create an Image
Create Startup Disks
Restore from an Image
Check an Image File
Copy a Disk to a Disk
Scheduler / Create a Script
Connect an Image as a Virtual Logical Disk
Disconnect Virtual Logical Disks
Action description
Creates an image of a selected hard drive, its one or several partition(s), or logical disks. You can also save the created disk imaging action as a command-line script to include it in a command file
R-Tools Technology Inc.
About
Back
Next
Exit
Help

Changing the program language

You may select the language of **R-Drive Image** panels . To do so, click the **About** button and select the required language using the **Language** button on the **About R-Drive Image** dialog box.

To start a required action, select

- **Create an Image** to start creating an image of a partition, logical disk, or entire hard drive
- **Restore from an Image** to start restoring data from an image
- **Copy Disk to Disk** to make an exact copy of one disk on another
- **Connect an Image as a Virtual Logical Disk** to start connecting an image as a **read-only** virtual disk
- **Disconnect Virtual Logical Disks** to start disconnecting virtual logical disks
- **Check an Image File** to check an existing image file

The **RAIDs, and Various Disk and Volume Managers** chapter explains how to perform disk actions with various compound volumes such as:

- **Windows Software RAIDs, Spanned, and Other Volumes**
- **Windows Storage Spaces**
- **Mac RAIDs**
- **Linux Logical Volume Manager Volumes**

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- **Create Startup Disk**
- **Restoring Data to a System or Other Locked Disk**
- **Support for Various Disk Partition Schemes and File Systems**
- **Disk to Disk Copy Using the Startup Disks**

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The **Scheduled Actions, Command Line Operations, and Scripting** chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- **Scheduler and Unattended Actions**
- **Scripting and Command Line Operations**
- **Backup sets**

The **Technical Information** chapter gives technical information on

- **Creating consistent point-in-time backups**
- **Support for Various non-MBR/GPT Partition Layouts**
- **Supported CD and DVD Recorders**
- **List of Hardware Devices Supported in the Startup Mode**

The **R-Drive Image OEM kit** chapter explains how computer system integrators can create system recovery disks for their systems

- **Create a Master Image**
- **Create Startup Media**

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

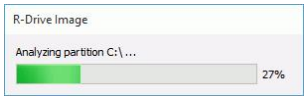
2.1 Create an Image

Note: The current version has a limited support for dynamic disks or other non-MBR/GPT partition layouts. See **Support for Various Disk Partition Schemes and File Systems** for details.

To create an image:

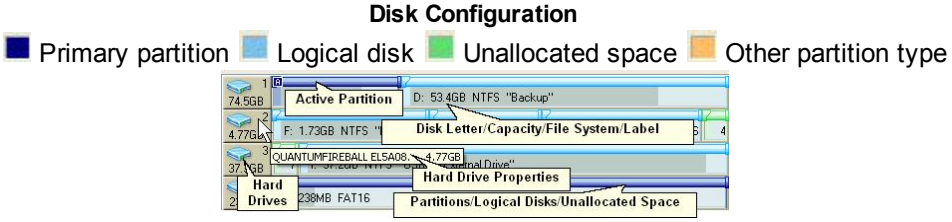
1 Click **Create an Image** on the **Action Selection** panel

R-Drive Image will start analyzing the computer disk configuration, the **Progress...** message showing the progress.



Then the **Partition Selection** panel will show the configuration.

More information...



S.M.A.R.T. warning for a hard drive

If a hard drive has S.M.A.R.T. warnings, a color mark will appear on its left-top corner. Drugging the cursor over the drive will show a tooltip explaining that warning.

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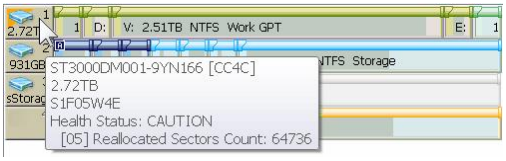
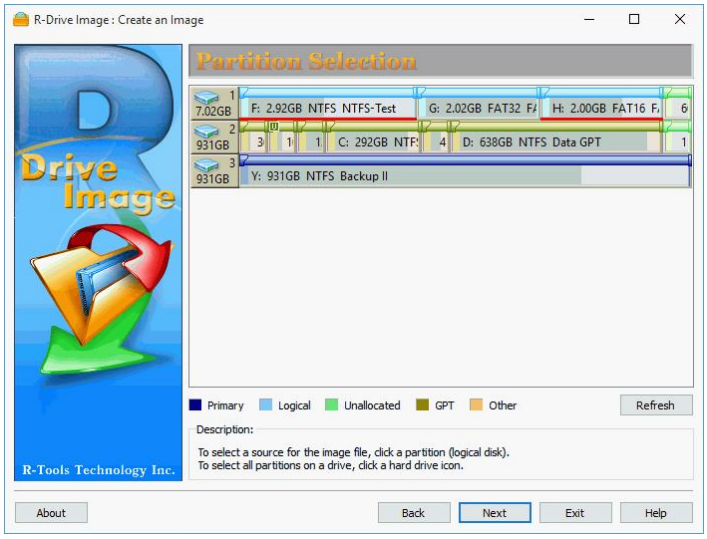


Warnings will also appear in confirming e-mails for scheduled actions.

```
* ==================[S.M.A.R.T.]==================
! ST3000DM001-9YN166 (2.72TB #1): Health Status: CAUTION
  [05] Reallocated Sectors Count: 64736
! ==================[S.M.A.R.T.]==================
```

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a technology widely-used in hard drives and solid-state devices that monitors their reliability conditions to predict possible hardware failures.

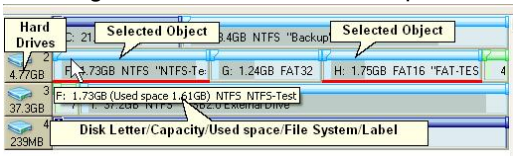
2 Select the objects you want to backup on the Partition Selection panel and click the Next button



More information...

Selected Objects

Primary partition Logical disk Unallocated space Other partition type



You may select all objects on a hard drive by clicking the hard drive icon. . It will show the marked hard drive.

Use the **Refresh** button if your computer disk configuration has been changed (when you connect a USB disk, for example).

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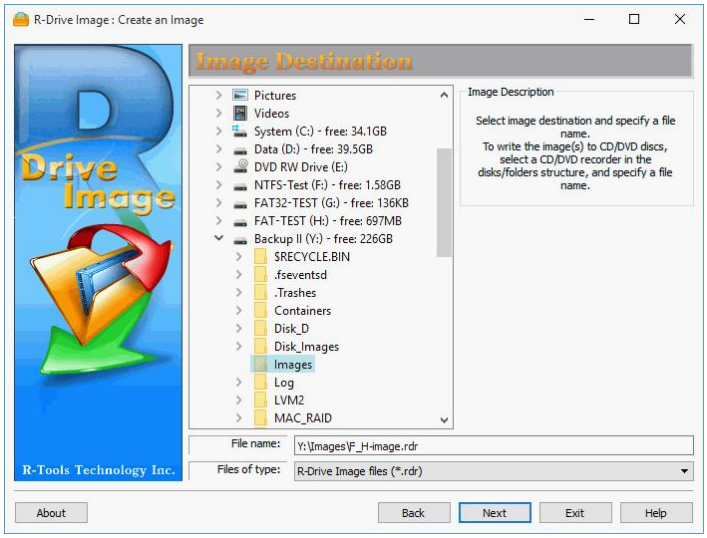
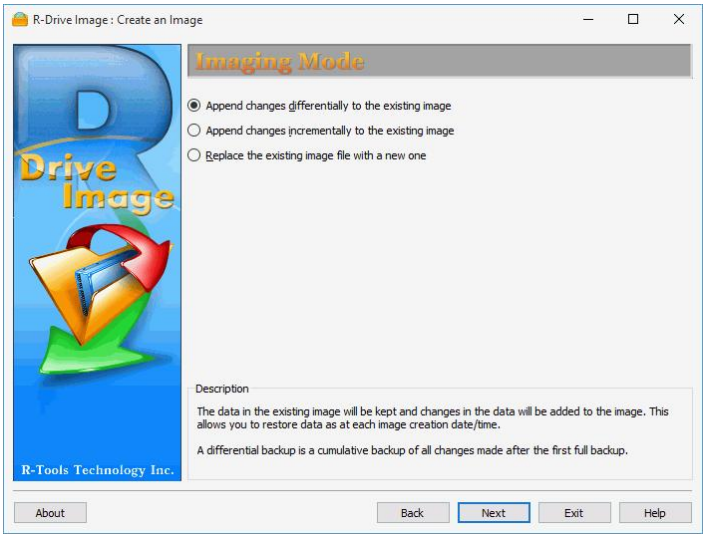
3 Select the place on the Image Destination panel to which the image files will be written, specify the file name, and click the Next button



You may select any place including connected network drives, **supported CD and DVD Recorders**, or any other devices with removable storage.

If you try to overwrite an existing image file, the **Imaging Mode** panel will appear. You may either overwrite the file or add to the existing image.


R-Drive Image : Create an Image
Imaging Mode
Append changes differentially to the existing image
Append changes incrementally to the existing image
Replace the existing image file with a new one
Description
The data in the existing image will be kept and changes in the data will be added to the image. This allows you to restore data as at each image creation date/time.
A differential backup is a cumulative backup of all changes made after the first full backup.
R-Tools Technology Inc.
About
Back
Next
Exit
Help

Imaging Mode Options

Append changes differentially to the existing image	Appended changes will be those between the saved full image and the current state. If there is no full image, it will be created instead. When restoring data, you will need the full image and ONLY the differential file created at the instant to which you want to restore data.
Append changes incrementally to the existing image	Appended changes will be those between the last saved changes and the current state. If there is no full image, it will be created instead. When restoring data, you will need the full image and ALL files (both incremental and differential ones) created to the instant to which you

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	want to restore data.
Minimum file sizes: If you need to keep only the latest backup instant, you may use the Append changes differentially to the existing image option and delete all previous differential files. If you need to keep all instances, you may use the Append changes incrementally to the existing image option to keep overall file sizes smaller. **Data safety:** If any of the differential file is damaged, data will be lost only for that backup instant. If any of the incremental file is damaged, data will be lost for all subsequent backup instances starting from the damaged file until the next full of differential backup.	
Replace the existing image file with a new one	All data in the image file will be replaced with the current one.

If you choose to overwrite the file, the **You are about to overwrite an existing image file...** warning will appear on the **Imaging Mode** panel. You may either overwrite the file or select another file name for the image.

If you try to append data to a password-protected image file, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

4 Specify image options on the Image Options panel and click the Next button

You may specify image options on this panel.

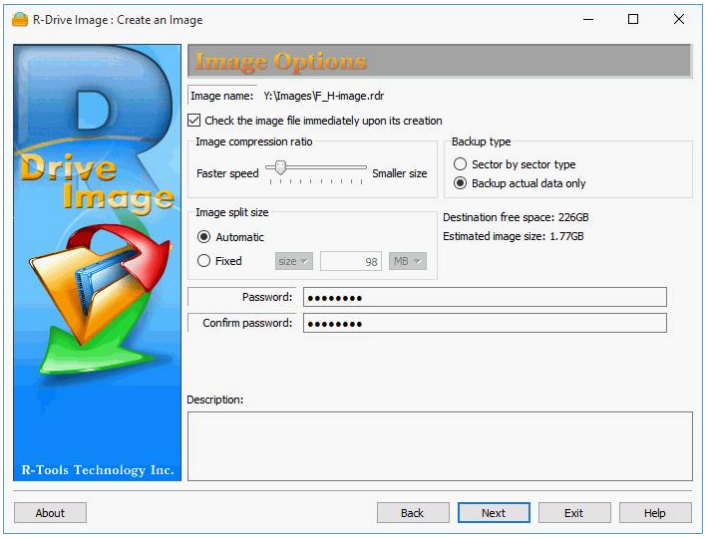

Image options

Options	
Image name:	Shows the file name for the image. You cannot change the file name on this panel.
Check the image file immediately upon its creation	Select this option if your want R-Drive Image to check the newly created file image for its consistency. This may be useful for storing image files with critical data. Please note that this operation requires additional time.
Image compression	You may compress the data in the image to save space. Please note that the

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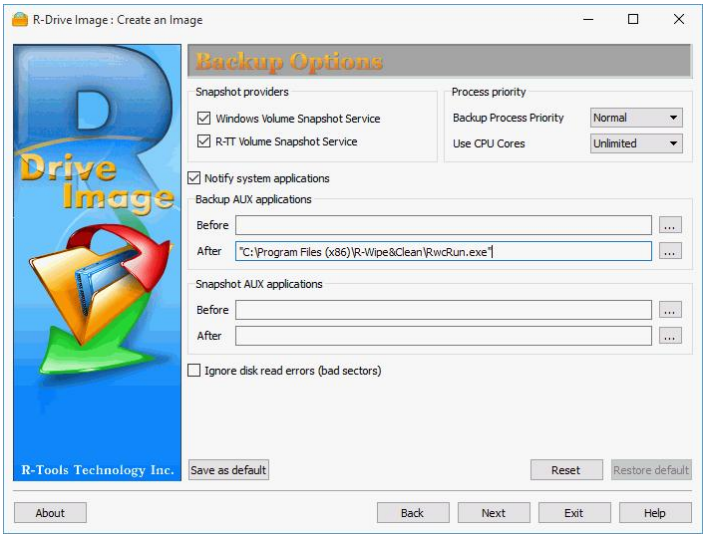
ratio	smaller size you select the more time will be spent to create the image file and vise versa.
Backup type	You may store in the image either the exact Sector by backup copy of the object or Backup useful information only, that is, you do not have to store empty space of the object in image files. See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems.
Estimated size	Shows the estimated size of the image file. An actual image size depends on how much empty space is on the selected partition and what file types are there.
Image split size	You may set this option to Automatic and let Windows decide how to split the image file. This mostly depends on the file system on the destination disk. You may also either explicitly specify the split size, or choose a preset for various devices with removable storage. Select Fixed size for that.
Password	You may protect your image file with a password. **Note:** This feature provides a relatively moderate protection against conventional unauthorized access.
Image description	You may attach a text description to the image for annotation. Maximum length of the description is 255 characters.

5 Specify backup options on the Backup Options panel and click the Next button

You may specify backup options on this panel. They are used to create consistent point-in-time backups.



Backup Options

Snapshot provider	A snapshot provider is a service **R-Drive Image** uses to read the disk content while creating its image. **R-Drive Image** uses the snapshot providers in the order specified on the tab. If it fails to use the first one selected, it tries to use the second one, and so on.
Windows Volume Snapshot Service	If this check box is selected, **R-Drive Image** will try to use the Windows native snapshot provider. This snapshot provider is able to notify system applications that a snapshot is being taken. If this option is selected, `pagefile.sys` and `hibernate.sys` files are excluded

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	from the image of the system disk.
R-TT Volume Snapshot Service	If this check box is selected, **R-Drive Image** will try to use R-TT snapshot provider. This snapshot provider is not able to notify system applications that a snapshot is being taken.
Notify system applications	If this check box is selected, the snapshot provider, if it supports this feature, notifies system applications that a snapshot is being taken.
Process priority	These options specify how much computer resources **R-Drive Image** will consume during a backup process.
Backup Process Priority	Specifies the priority of the backup process. Similar to that specified in Windows Task Manager.
Use CPU cores	Specifies how many processor cores **R-Drive Image** will use for the backup process.
Ignore disk read errors (bad sectors)	If this check box is selected, **R-Drive Image** will ignore possible read errors when it tries to read data from bad sectors. **R-Drive Image** works with disks with bad sectors in the following way: It reads a certain part of disk (predefined by Windows) and • If read errors are ignored, the entire part with bad sectors will be filled with zeros. • If read errors are not ignored, **R-Drive Image** reads that part sector by sector and shows a warning message for every bad sector with two options: skip the sector or try to read it again. In this case only the bad sectors will be filled with zeros, but all that requires manual actions and extremely slows the imaging process. Please note that **R-Drive Image** is developed for the work with normally functioning disks. If you need to image a malfunctioning disk, use **R-Studio**, a data recovery utility. It has more controls for imaging, and can create **R-Drive Image**-compatible images even in its demo mode, that is, without registering.
Backup AUX applications	**R-Drive Image** is able to make applications run before and after all backup operations. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application **R-Drive Image** starts before the backup operations starts. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
After	An application **R-Drive Image** starts after the backup operations completes. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
Snapshot AUX applications	**R-Drive Image** is able to make applications run before and after taking the snapshot of one or several volumes. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application **R-Drive Image** starts before it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`

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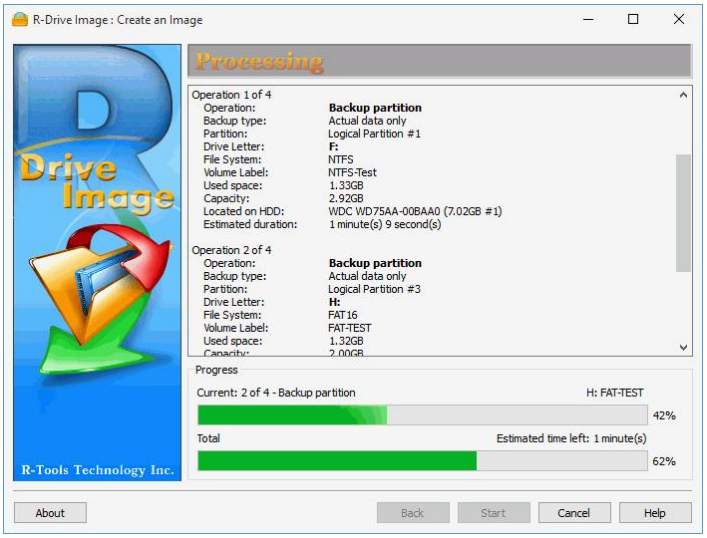
After	An application **R-Drive Image** starts after it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
Save as default	Click this button to make the current settings default.
Reset	Click this button to reset the current settings default.
Restore defaults	Click this button to restore default settings.

See **Creating consistent point-in-time backups** for more details.

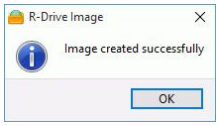
6 Verify that the information on the Processing panel is correct and click the Start button

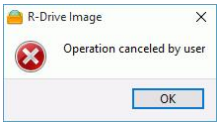
You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility.



> R-Drive Image will start creating the image file(s)

The Progress bar will show the progress of the current operation and overall process. When the image is created, the **Image created successfully.** message will appear. You may cancel the current operation by clicking the **Cancel** button. The **Operation canceled by user** message will appear.





Writing images on CD-R/RW discs and other devices with removable storage

CD-R/RW and DVD discs

If you select a CD/DVD drive to write the image file, you will see the **Media Options** panel

You may create a system recovery disc(s) for your system if you select the Include **R-Drive Image bootable version** option on this panel. You may start your system up using such CD/DVD disc and recover the data using the **R-Drive Image** startup version.

Then select appropriate CD/DVD Media Options. Leave Use ISO caching selected unless you have problems with data recording on a disc.

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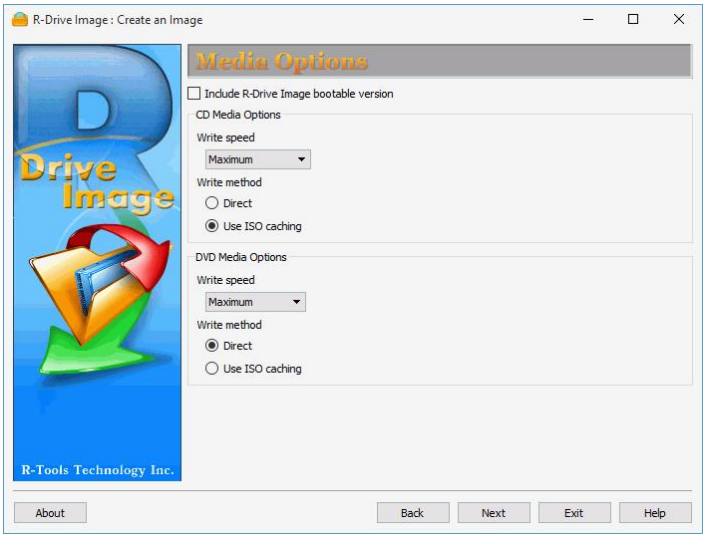


When you click the **Start** button, **R-Drive Image** will open the CD-R/RW drive tray and the **Insert a blank CD-R/RW disc...** message will appear. Insert a blank CD-R/RW disc and click the **OK** button. Each time **R-Drive Image** fills the disc, the **Insert the next blank CD-R/RW disc...** message will appear. Insert the next blank CD-R/RW disc and click the **OK** button.

If you mistakenly insert a non-empty CD-R/RW disc, the **CD-R/RW disc is not empty...** message will appear. Change the disc to another empty CD-R/RW disc and click the **OK** button.

Supported CD and DVD Recorders.

Other devices with removable storage

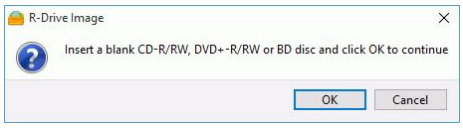
When the removable disk in the device is full, the **Disk is full...** message will appear. Change the disk and click the **OK** button. Follow the device instructions on how to change its disks.

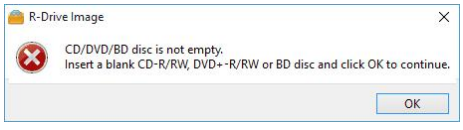
Disk/file structure for CD-R/RW discs and other devices with removable storage

If you specify the `filename.rdr` file name for the image file, **R-Drive Image** will create the following disk/file structure:

Disc	File name
The first disk	`filename1.rdr`
The second disk	`filename2.rdr`
The third disk	`filename3.rdr`
...	`...`

It is recommended that you mark the disk accordingly. You will start restoring the data from the last disk. Go to the **Restore Data from an Image** topic for more details.





Bad Sectors

When **R-Drive Image** encounters a bad sector, the **IO Error** message will appear. You may either cancel

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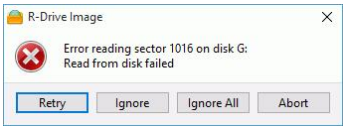
the current action or fill the bad sectors with zeros.

IO Error Options

Abort	Click this button to cancel the action
Retry	Click this button to try to read the bad sectors once again
Ignore	Click this button to skip this error and fill the bad sectors with zeros
Ignore All	Click this button to skip all errors and fill the bad sectors with zeros



The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

2.2 Restore Data from an Image

Note: The current version has a limited support for dynamic disks or other non-MBR/GPT partition layouts. See **Support for Various Disk Partition Schemes and File Systems** for details.

We recommend you stop all other programs before you start restoring data on a partition.

Note: Go to the **Restoring Data to a System or Other Locked Disk** topic if you want to learn how to restore data to system disks.

To restore data from an image:

1 **Click Restore from an Image on the Action Selection panel**

R-Drive Image will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then **R-Drive Image** will show you the **Image File Selection** panel with the disks/folder structure.

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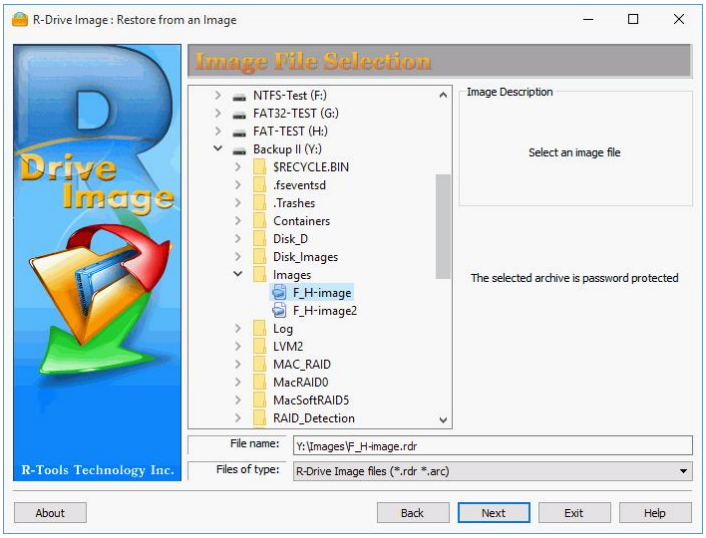
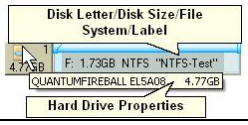
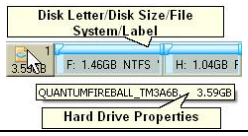
2 Select the file with the image on the Image File Selection panel and click the Next button



When you click the file, you may view its content in the right panel.

More information...

Objects in Image Files Primary partition Logical disk Unallocated space Other partition type	
Image with one logical disk	
Image with two logical disks on one hard drive	
Image with two logical disks on two hard drives	

You may also restore data directly from Windows explorer by right-clicking the required image file with the `.rdr` extension and selecting **Restore Image** from the shortcut menu.

If you select an image with incremental or differential data backup, the **Image Date/Time Selection** panel will appear. Select the date and time of image creation and click the **Next** button.

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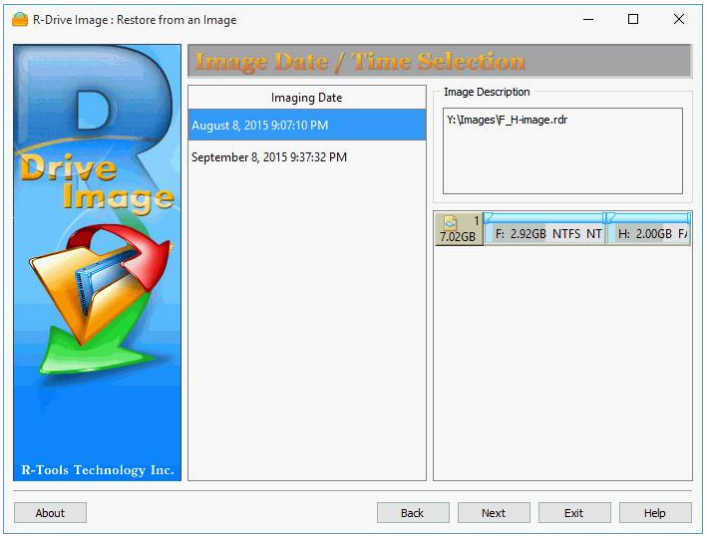
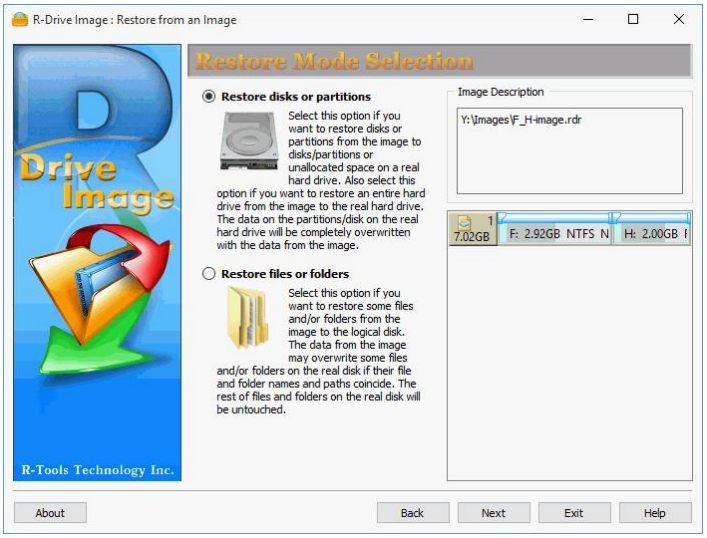


If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

3 **Select what you want to restore: an entire disk/partition or selected folders and file on the Restore Mode Selection panel, and click the Next button**


R-Drive Image : Restore from an Image
Restore Mode Selection
Restore disks or partitions
Select this option if you want to restore disks or partitions from the image to disks/partitions or unallocated space on a real hard drive. Also select this option if you want to restore an entire hard drive from the image to the real hard drive. The data on the partitions/disk on the real hard drive will be completely overwritten with the data from the image.
Restore files or folders
Select this option if you want to restore some files and/or folders from the image to the logical disk. The data from the image may overwrite some files and/or folders on the real disk if their file and folder names and paths coincide. The rest of files and folders on the real disk will be untouched.
Image Description
Y:\Images\F_H-image.rdr
7.02GB
F: 2.92GB NTFS N
H: 2.00GB F
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Restoring selected files and folders will be explained below in the **Restoring selected files and folders** section.

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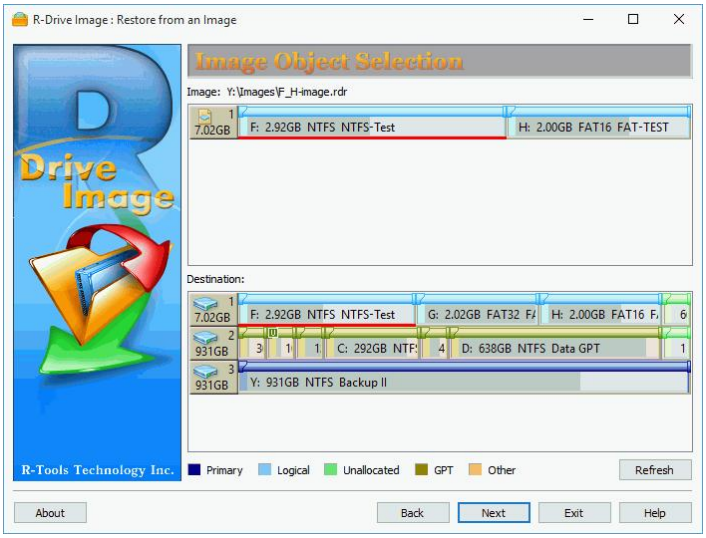
4 Select the object in the image file on the Image Object Selection panel, select a destination, and click the Next button



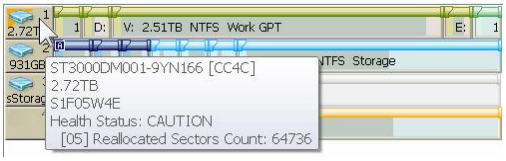
Use the **Refresh** button if your computer disk configuration has been changed (when you connect a USB disk, for example).

You may select all objects on a hard drive by clicking the hard drive icon. . It will show the marked hard drive.

You may select only one object at a time, and you need to specify the destination to proceed further.

S.M.A.R.T. warning for a hard drive

If a hard drive has S.M.A.R.T. warnings, a color mark will appear on its left-top corner. Drugging the cursor over the drive will show a tooltip explaining that warning.



Warnings will also appear in confirming e-mails for scheduled actions.

```
* ====================[S.M.A.R.T.]====================
! ST3000DM001-9YN166 (2.72TB #1): Health Status: CAUTION
  [05] Reallocated Sectors Count: 64736
! ====================[S.M.A.R.T.]====================
```

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a technology widely-used in hard drives and solid-state devices that monitors their reliability conditions to predict possible hardware failures.

More information...

If the chosen destination is smaller than the selected image, **R-Drive Image** will show the **Destination disk is too small** message and you will need to select another destination.

If you select several partitions as the destination, **R-Drive Image** will show the **You have selected several partitions...** message. If you click the **OK** button, all those partitions will be deleted and data will be restored on that free space.

Note: Although **R-Drive Image** shows unallocated space instead of the deleted partitions, the partitions and their data will be actually deleted only when **R-Drive Image** starts restoring the data from the image.

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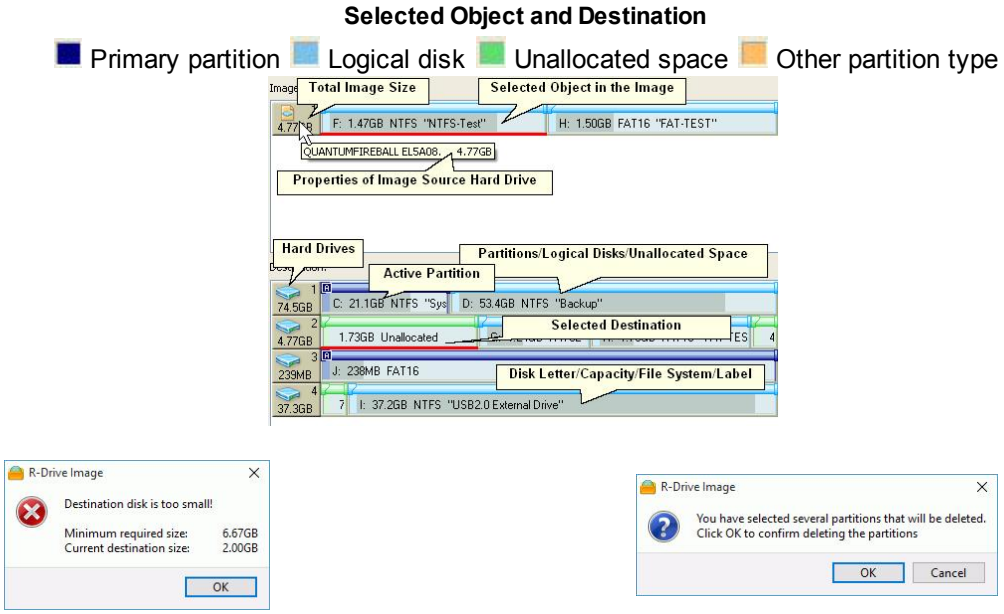
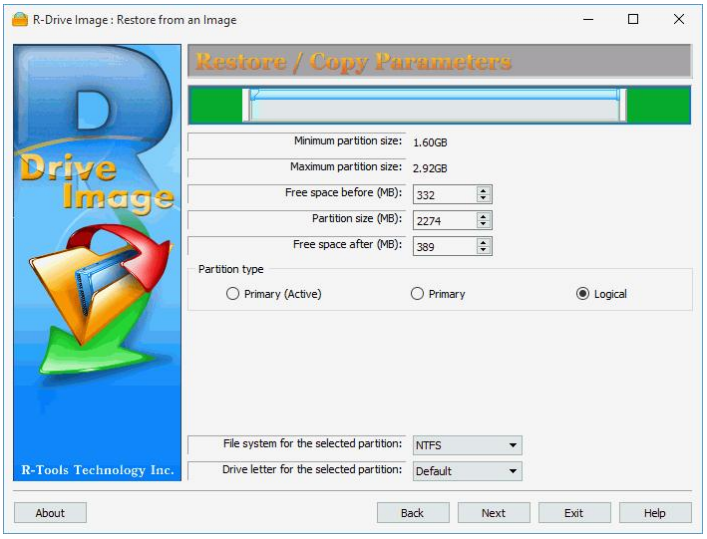


5 Specify restore parameters on the Restore/Copy Parameters panel and click the Next button



Restore parameters

Restore Options	
	You may visually adjust the location and size of the object to be restored. All other restore options will be adjusted accordingly. Also, when you adjust one or several restore options directly, these changes will be shown visually. Green marks available space. See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems.
Minimum partition size	Minimum partition size that may be allocated for the data in the image. Depends on how much free space is in the data in the image and its file system.

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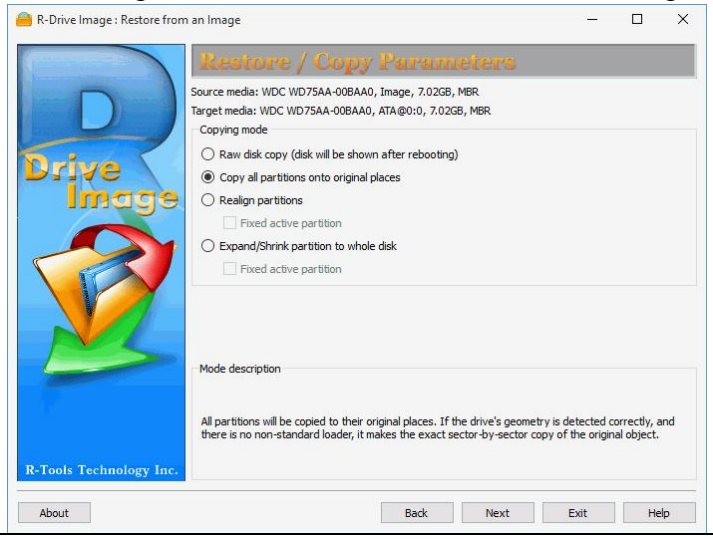
Maximum partition size	Maximum partition size that may be allocated for the data in the image. Depends on the file system of the selected object.
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Free space after	You may specify the size of free space that will be left on the hard drive after the end of the partition.
Partition type Primary (Active)/ Primary/ Logical	You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.
File system for the selected partitions	You may select the file system for the partition to be restored.
Drive letter for the selected partition	Select the letter that will be assigned to the partition. You may select "Do not connect" if you do not want to connect this partition to your system.
Copy disk signature	This parameter appears when the Primary (Active) option is selected. If you select this option, **R-Drive Image** will write the disk signature of the source object to the target one. This is necessary for the Windows to properly recognize the startup disk, but the disk signature collision may occur. You'll need to disconnect one of the collided disks to enable your computer start up properly.

To restore data from an image of an entire hard drive to a hard drive:

The **Restore/Copy Parameters** panel will be different with different sets of options:


R-Drive Image : Restore from an Image
Restore / Copy Parameters
Source media: WDC WD75AA-00BAA0, Image, 7.02GB, MBR
Target media: WDC WD75AA-00BAA0, ATA@0:0, 7.02GB, MBR
Copying mode
Raw disk copy (disk will be shown after rebooting)
Copy all partitions onto original places
Realign partitions
Fixed active partition
Expand/Shrink partition to whole disk
Fixed active partition
Mode description
All partitions will be copied to their original places. If the drive's geometry is detected correctly, and there is no non-standard loader, it makes the exact sector-by-sector copy of the original object.
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HDD Copy Method	
Raw disk copy	**R-Drive Image** writes sector-by-sector the data from the original drive or its image to the target one making an exact copy of the original disk regardless of its partitioning method. Can be used if other methods create a non-bootable disk due to incorrect detection of drive's geometry or non-standard loader.

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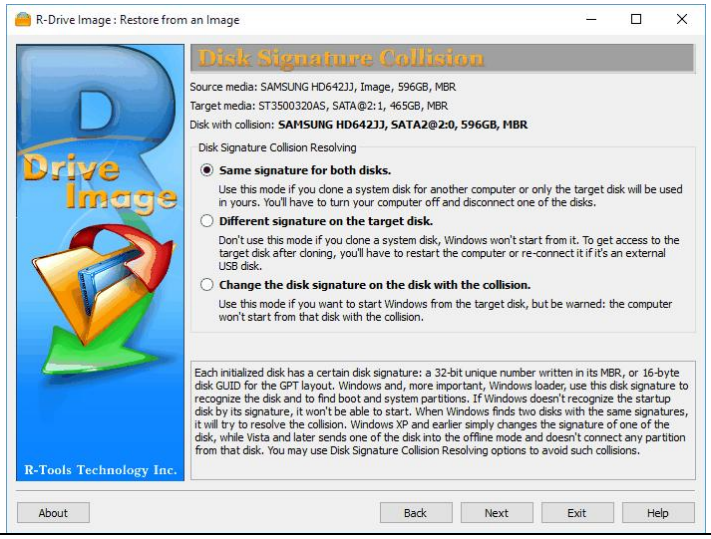
	Drawback: partition sizes cannot be changed.
Copy all partitions onto original places	**R-Drive Image** copies all partitions to their original places. If **R-Drive Image** detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
Realign partitions	**R-Drive Image** will copy the partitions on the disk with a 512KB alignment. This is very useful for SSD and advanced-formatted disks. If there are empty (non-used) spaces between partitions, those spaces will be removed taking into account the alignment.
Expand/Shrink partition to whole disk	If there are empty (not-used) places between the partitions or they occupy less or more space than the target drive, **R-Drive Image** proportionally expands/shrinks them to occupy the entire target drive. Otherwise it is similar to Copy all partitions onto original places.
Fixed active partition	**R-Drive Image** preserves the original offset/size of the active partition (in case the loader has links to it).

See **Support for Various Disk Partition Schemes and File Systems** for details.

When you restore data from an image of a system disk, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.


R-Drive Image : Restore from an Image
Disk Signature Collision
Source media: SAMSUNG HD642JJ, Image, 596GB, MBR
Target media: ST3500320AS, SATA@2:1, 465GB, MBR
Disk with collision: SAMSUNG HD642JJ, SATA2@2:0, 596GB, MBR
Disk Signature Collision Resolving
Same signature for both disks.
Use this mode if you clone a system disk for another computer or only the target disk will be used in yours. You'll have to turn your computer off and disconnect one of the disks.
Different signature on the target disk.
Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the disk with the collision.
Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from that disk with the collision.
Each initialized disk has a certain disk signature: a 32-bit unique number written in its MBR, or 16-byte disk GUID for the GPT layout. Windows and, more important, Windows loader, use this disk signature to recognize the disk and to find boot and system partitions. If Windows doesn't recognize the startup disk by its signature, it won't be able to start. When Windows finds two disks with the same signatures, it will try to resolve the collision. Windows XP and earlier simply changes the signature of one of the disk, while Vista and later sends one of the disk into the offline mode and doesn't connect any partition from that disk. You may use Disk Signature Collision Resolving options to avoid such collisions.
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Disk Signature Collision Resolving	
Same signature for both disk	**R-Drive Image** will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a system disk for another computer or only the target disk will be used in yours.
Different signature on the target disk.	**R-Drive Image** will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the source disk.	**R-Drive Image** will change the disk signature on the source disk. Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from the source disk anymore.

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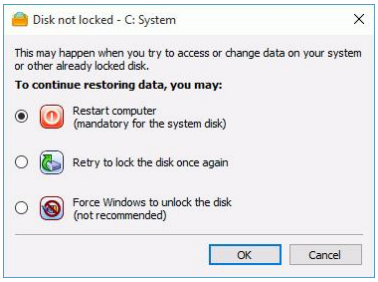
If you try to restore data to a system or other disk locked by the system or other application, the **Disk not locked** message will appear.


Disk not locked - C: System
This may happen when you try to access or change data on your system or other already locked disk.
To continue restoring data, you may:
Restart computer (mandatory for the system disk)
Retry to lock the disk once again
Force Windows to unlock the disk (not recommended)
OK
Cancel

To continue restoring you may:

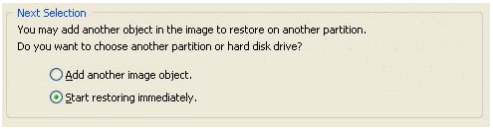
- If you restore data to your system disk, select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode. Read carefully the Restoring Data to a System Disk topic before you proceed.
- **If you restore data to a disk locked by other low-level disk software (including Windows internal services)**, stop this software and select Retry to lock the disk once again.
- You may also try to unlock the disk by selecting Force Windows to unlock the disk (not recommended). If Windows fails to unlock the disk, the **Disk not locked** message will appear again. You will need to stop the software locking the disk manually or select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode.

Note: Use this option cautiously, because it may cause unpredictable results including system crash and data loss.

6 Verify that the information on the Processing panel is correct and click the Start button

You may add other objects from the same image and restore data to several partitions in one process. Select **Add another image object** in the Next Selection on the **Processing** panel and click the **Next** button.

You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility

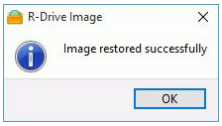

Next Selection
You may add another object in the image to restore on another partition.
Do you want to choose another partition or hard disk drive?
Add another image object.
Start restoring immediately.

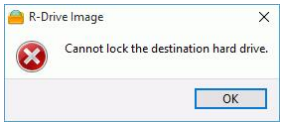
> R-Drive Image will start restoring the data from the image file to the selected destination.

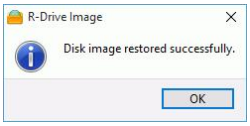
When the image is restored, the **Image restored successfully** message will appear.

If some other program (like a file manager) is accessing the partition on which the data is to be restored, the **Cannot lock the disk** message will appear. Close this program or make it stop accessing the partition.

If you restore data from an image of an entire hard drive to an entire hard drive, the system may not see the restored partitions until restarted. In this case **R-Drive Image** will show the **Disk image restored successfully.** message. Click the **Yes** button to restart your system.







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Restoring data from CD-R/RW drives or other devices with removable storage

For the image with the file name `filename.rdr`, **R-Drive Image** creates the following disk/file structure:

Disk	**File name**
The first disk	`filename1.rdr`
The second disk	`filename2.rdr`
The third disk	`filename3.rdr`
...	`...`

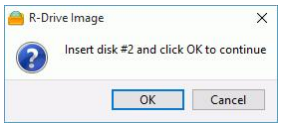
You should start restoring the data from the **last** disk.
Each time **R-Drive Image** requires a new disk, the **Insert disk #...** message will appear. Insert the necessary disk and click the **OK** button. Follow the device instructions on how to change its disks.
Note: At the beginning, **R-Drive Image** may require you to change the first/last disks several times.

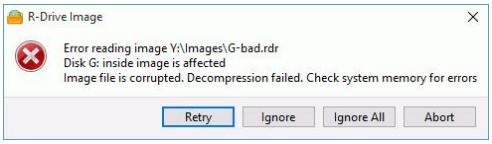
Bad Sectors

When **R-Drive Image** encounters a bad sector, the **IO Error** message will appear. You may either cancel the current action or fill the bad sectors with zeros.

IO Error Options

Abort	Click this button to cancel the action
Retry	Click this button to try to read the bad sectors once again
Ignore	Click this button to skip this error and fill the bad sectors with zeros
Ignore All	Click this button to skip all errors and fill the bad sectors with zeros





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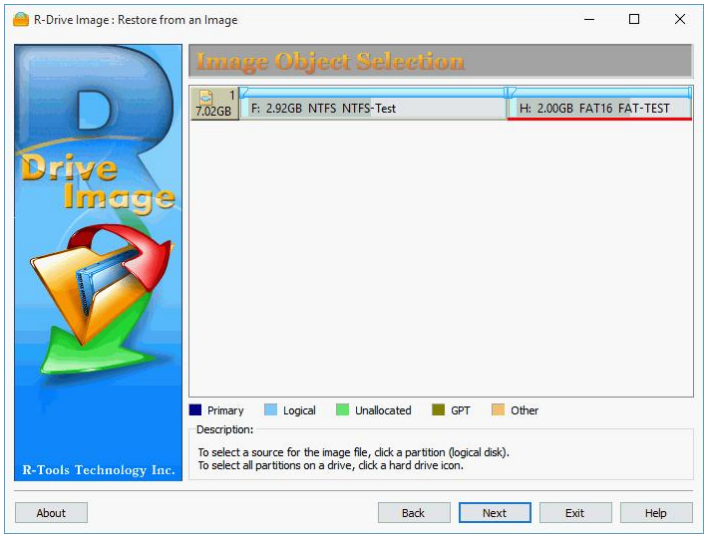
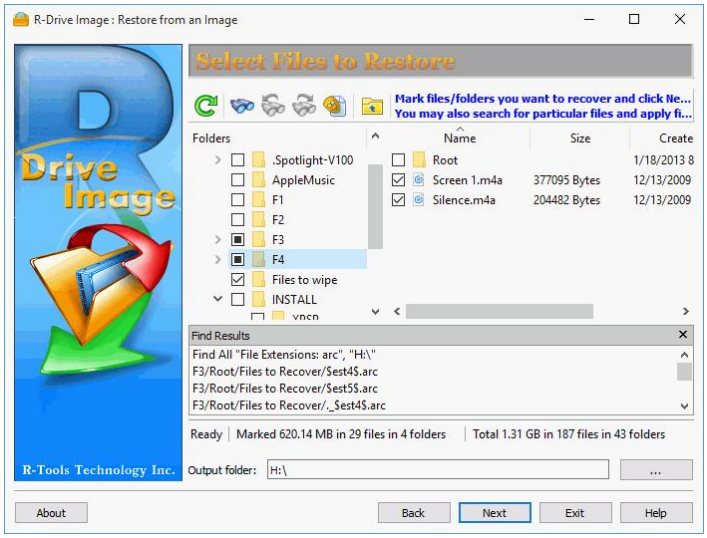
Restoring selected files and folders

(See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems)

4 Select the object in the image file on the Image Object Selection pane where the files and folders reside, and click the Next button



5 Mark folders and files to restore on the Select Files to Restore panel and click the Next button



Buttons

Find

Click this button to find a particular file/folder.

R-Drive Image searches for files only among files specified by a **File Mask**.

Find Next

Click this button to find the next object specified in the **Find** dialog window.

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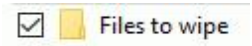
Find Previous
Click this button to find the previous object specified in the **Find** dialog window.

File Mask
Click this button to specify a file mask.

Up
Click this button to move highlighting one folder up.

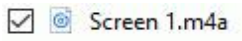
Folders panel. Richt-click a folder to reach its shortcut menu.



Marked folder (all child objects in this folder are marked)

Partially marked folder (some child objects in this folder are marked)

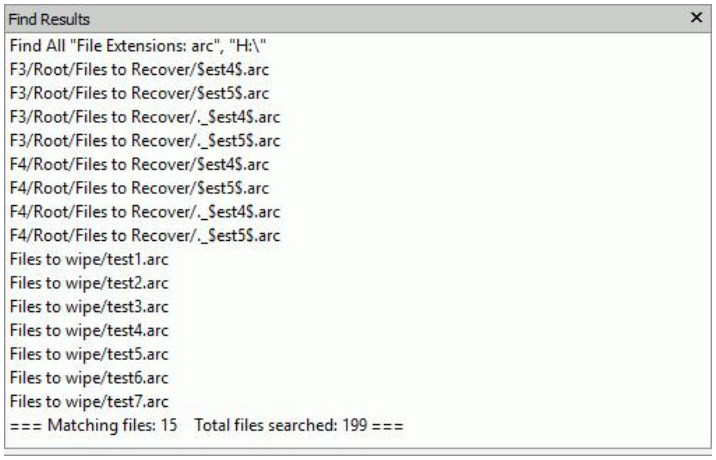
Files panel:



File marked to restore

The **Find Results** panel.

Appears when file search has been performed



Log panel:

File search

You may use the advanced search capabilities of **R-Drive Image** to find necessary files. Click the **Find** button and specify the files to find on the **Find** dialog box.

Note that a **File Mask** may be applied.

You may also reach the **Find** dialog box by right-clicking a folder on the **Folders** pane and selecting an appropriate item in the shortcut menu.

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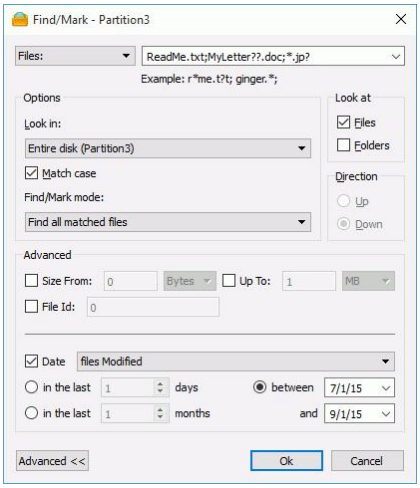
Find/Mark *dialog box*



Find/Mark options

You may specify how to treat specified strings. Please note that **R-Drive Image** stores previously entered search strings.	
Files	If this option is selected, **R-Drive Image** treats specified strings as file names. Use ? for one unspecified character and * for an unlimited number of them to specify file masks.
File Extensions	If this option is selected, **R-Drive Image** treats specified strings as file extensions
Regular Expressions	If this option is selected, **R-Drive Image** treats specified strings as regular expressions
All Files	If this option is selected, **R-Drive Image** applies Advanced Options to all files.
Options	
Match case	If this check box is selected, **R-Drive Image** makes a case-sensitive search
Look in	Specifies where **R-Drive Image** searches for, and marks, files. It can look for them on the Entire disk, From current folder, In the Current folder and subfolders, and in the Current folder only. If From current folder is selected, you may also specify the Direction for the search from the current position in the current folder.
Find/Mark mode	Specifies what **R-Drive Image** does with the found files. It may: Find all matched files. **R-Drive Image** searches for all files that match the search criteria. The search results appear on the **Find Results** panel. Find first matched file. **R-Drive Image** stops at the first found file. Mark matched files. **R-Drive Image** marks all found files. Unmark matched files. **R-Drive Image** unmarks all found files. Please note, that when performing a new find and mark/unmark task, **R-Drive Image** does not takes into consideration the previous marked/unmarked state of files. For example, if you first mark all `doc` files, and then all `txt` files, all `doc` files remain marked, too. To unmark them, you should specify `doc` once again and select Unmark matched files.
Look at	
Files	If this check box is selected, **R-Drive Image** includes files into a search.
Folders	If this check box is selected, **R-Drive Image** includes folders into a search.

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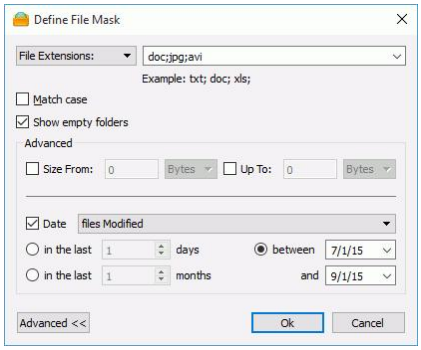
Direction	Specifies search direction from the current position. Available only if From current folder is selected in Look in.
Advanced Options	
Size from/up to	Specifies file size limits.
File Id	Specifies File Id that **R-Drive Image** assigns to a file.
Date	Specifies file date boundaries. Files may be Modified/Created/Last Accessed.

Use the **Find Next** or **Find Previous** buttons or shortcut menu commands to repeat the search.

You may use file masks to find files visually. Click the **File Mask** button and specify a file mask on the **Mask** dialog box. You may also use the shortcut menu to reach this dialog box.

Mask dialog box



File mask options

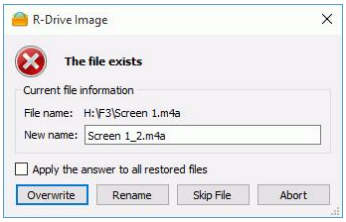
You may specify options for All Files, File Extensions, Files, and Regular Expressions	
Match case	If this check box is selected, **R-Drive Image** makes a case-sensitive search.
Show empty folders	If this check box is selected, **R-Drive Image** will show folders with no files matching the mask.
Advanced Options	
Size from/up to	Specifies file size limits.
Date	Specifies file date boundaries. Files may be Modified/Created/Last Accessed.

6 Verify that the information on the Processing panel is correct and click the Start button

You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility.

> R-Drive Image will start restoring the files from the image file to the selected destination.

If the files already exist in the specified folder, **The file exists** message will appear. Click the necessary button to resume the restore operation.



When the image is restored, the **Files restored successfully** message will appear.

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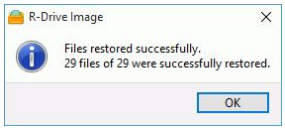


The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

2.3 Copy a Disk to a Disk

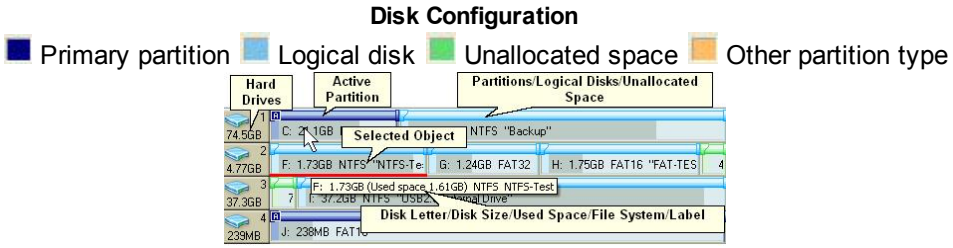
Attention: All previous data on the destination disk will be completely deleted

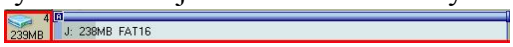
To copy an entire disk or its part to another one:

1 **Click Copy Disk to Disk on the Action Selection panel**

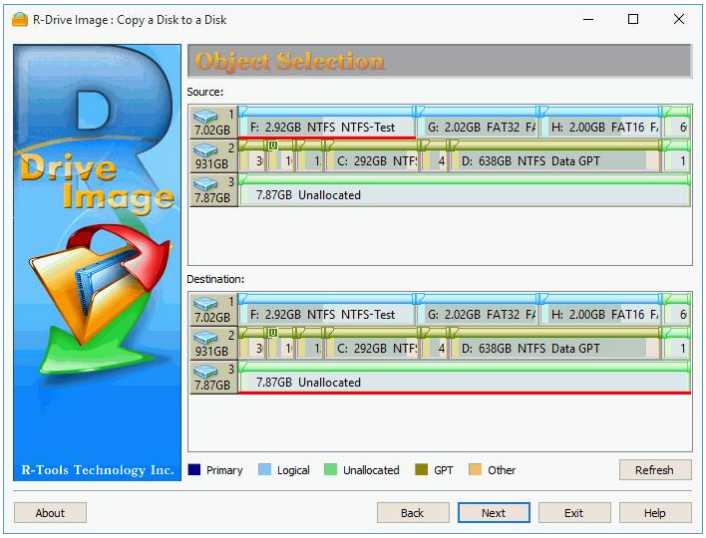
R-Drive Image will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **Object Selection** panel will show the configuration.

More information...



You may select all objects on a hard drive by clicking the hard drive icon. . It will show the marked hard drive. 

2 **Select the disk object on the Source: on the Object Selection panel, select a destination, and click the Next button**



You may select only one object at a time, and you need to specify the destination to proceed further.

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Use the **Refresh** button if your computer disk configuration has been changed (when you connect a USB disk, for example).

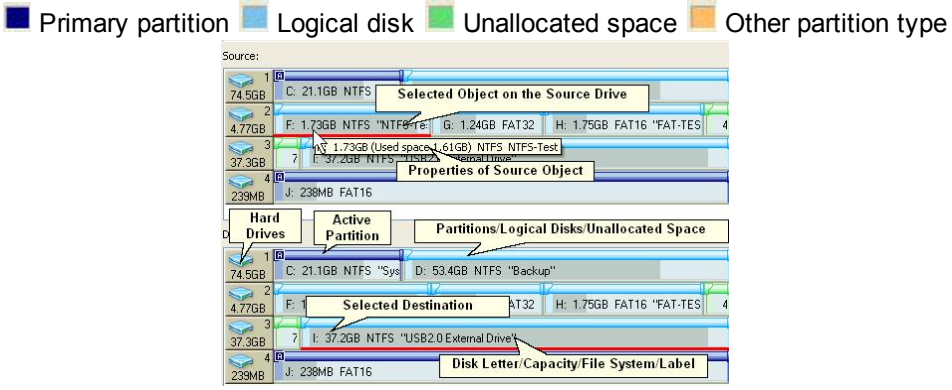
More information...

If the destination is smaller than the selected object, **R-Drive Image** will show the **Source is larger than Destination** message and you will need to select another destination.

If you select several partitions as the destination, **R-Drive Image** will show the **You have selected several partitions...** message. If you click the **OK** button, all those partitions will be deleted and data will be restored on that free space.

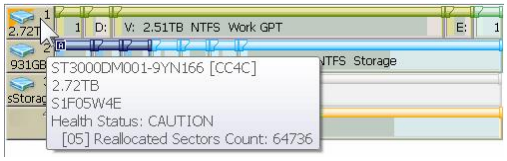
Note: Although **R-Drive Image** shows unallocated space instead of the deleted partitions, the partitions and their data will be actually deleted only when **R-Drive Image** starts copying the data.

Selected Object and Destination



S.M.A.R.T. warning for a hard drive

If a hard drive has S.M.A.R.T. warnings, a color mark will appear on its left-top corner. Drugging the cursor over the drive will show a tooltip explaining that warning.



Warnings will also appear in confirming e-mails for scheduled actions.

```
* ==================[S.M.A.R.T.]==================
! ST3000DM001-9YN166 (2.72TB #1): Health Status: CAUTION
  [05] Reallocated Sectors Count: 64736
! ==================[S.M.A.R.T.]==================
```

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a technology widely-used in hard drives and solid-state devices that monitors their reliability conditions to predict possible hardware failures.

If you try to copy data to or from a system, or other disk locked by the system or other application, the **Disk not locked** message will appear.

To continue copying you may:

- **If you copy data to or from your system disk**, select Restart computer (recommended) to continue restoring the data in the **R-Drive Image** startup mode. Read carefully the **Disk to Disk Copy Using the Startup Disks** topic before you proceed.
- **If you copy data to a disk locked by other low-level disk software (including Windows internal services)**, stop this software and select Retry to lock the disk once again.

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- You may also try to unlock the disk by selecting **Force Windows to unlock the disk (not recommended)**. If Windows fails to unlock the disk, the **Disk not locked** message will appear again. You will need to stop the software locking the disk manually or select Restart computer (recommended) to continue copying the data in the **R-Drive Image** startup mode.

Note: Use this option cautiously, because it may cause unpredictable results including system crash and data loss.

You may select all objects on a hard drive by clicking the hard drive icon. . It will show the marked hard drive.

3 Specify copy parameters on the Restore/Copy Parameters panel and click the Next button

Restore parameters

Restore Options	
	You may visually adjust the location and size of the object to be restored. All other restore options will be adjusted accordingly. Also, when you adjust one or several restore options directly, these changes will be shown visually. Green marks available space. See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems.
Minimum partition size	Minimum partition size that may be allocated for the data in the image. Depends on how much free space is in the data in the image and its file system.
Maximum partition size	Maximum partition size that may be allocated for the data in the image. Depends on the file system of the selected object.
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Free space after	You may specify the size of free space that will be left on the hard drive after the end of the partition.
Partition type Primary (Active)/ Primary/ Logical	You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.
File system for the selected partitions	You may select the file system for the partition to be restored.
Drive letter for the selected partition	Select the letter that will be assigned to the partition. You may select "Do not connect" if you do not want to connect this partition to your system.
Copy disk signature	This parameter appears when the Primary (Active) option is selected. If you select this option, **R-Drive Image** will write the disk signature of the source object to the target one. This is necessary for the Windows to properly recognize the startup disk, but the disk signature collision may occur. You'll need to disconnect one of the collided disks to enable your computer start up properly.

To copy data from an entire hard drive to another hard drive:

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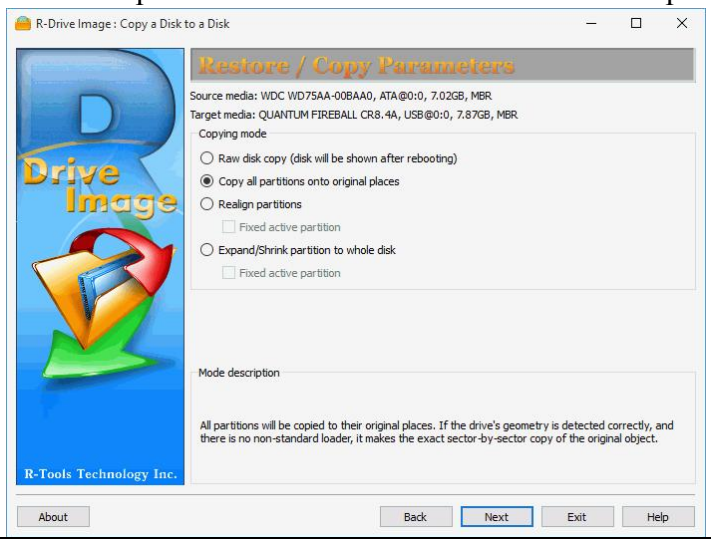
The **Restore/Copy Parameters** panel will be different with different sets of options:


R-Drive Image : Copy a Disk to a Disk
Restore / Copy Parameters
Source media: WDC WD75AA-00BAA0, ATA@0:0, 7.02GB, MBR
Target media: QUANTUM FIREBALL CR8.4A, USB@0:0, 7.87GB, MBR
Copying mode
Raw disk copy (disk will be shown after rebooting)
Copy all partitions onto original places
Realign partitions
Fixed active partition
Expand/Shrink partition to whole disk
Fixed active partition
Mode description
All partitions will be copied to their original places. If the drive's geometry is detected correctly, and there is no non-standard loader, it makes the exact sector-by-sector copy of the original object.
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About
Back
Next
Exit
Help

HDD Copy Method	
Raw disk copy	**R-Drive Image** writes sector-by-sector the data from the original drive or its image to the target one making an exact copy of the original disk regardless of its partitioning method. Can be used if other methods create a non-bootable disk due to incorrect detection of drive's geometry or non-standard loader. Drawback: partition sizes cannot be changed.
Copy all partitions onto original places	**R-Drive Image** copies all partitions to their original places. If **R-Drive Image** detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
Realign partitions	**R-Drive Image** will copy the partitions on the disk with a 512KB alignment. This is very useful for SSD and advanced-formatted disks. If there are empty (non-used) spaces between partitions, those spaces will be removed taking into account the alignment.
Expand/Shrink partition to whole disk	If there are empty (not-used) places between the partitions or they occupy less or more space than the target drive, **R-Drive Image** proportionally expands/shrinks them to occupy the entire target drive. Otherwise it is similar to Copy all partitions onto original places.
Fixed active partition	**R-Drive Image** preserves the original offset/size of the active partition (in case the loader has links to it).

See **Support for Various Disk Partition Schemes and File Systems** for details.

When you copy a system disk, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.

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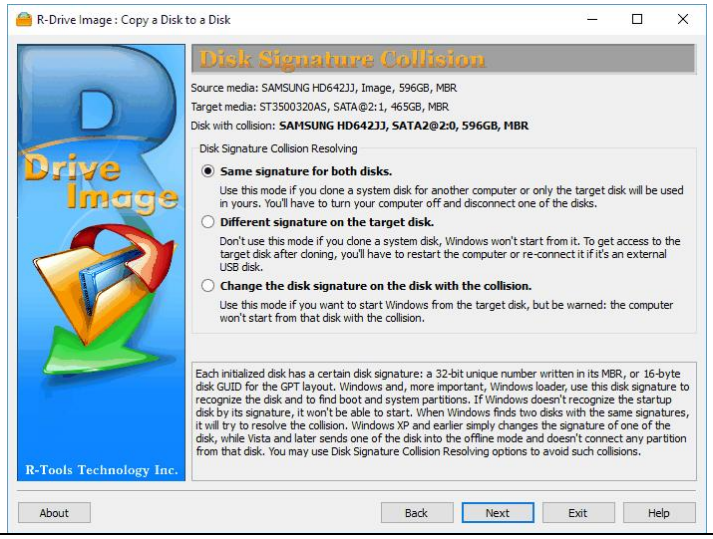
R-Drive Image : Copy a Disk to a Disk
Disk Signature Collision
Source media: SAMSUNG HD642JJ, Image, 596GB, MBR
Target media: ST3500320AS, SATA@2:1, 465GB, MBR
Disk with collision: SAMSUNG HD642JJ, SATA2@2:0, 596GB, MBR
Disk Signature Collision Resolving
Same signature for both disks.
Use this mode if you clone a system disk for another computer or only the target disk will be used in yours. You'll have to turn your computer off and disconnect one of the disks.
Different signature on the target disk.
Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the disk with the collision.
Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from that disk with the collision.
Each initialized disk has a certain disk signature: a 32-bit unique number written in its MBR, or 16-byte disk GUID for the GPT layout. Windows and, more important, Windows loader, use this disk signature to recognize the disk and to find boot and system partitions. If Windows doesn't recognize the startup disk by its signature, it won't be able to start. When Windows finds two disks with the same signatures, it will try to resolve the collision. Windows XP and earlier simply changes the signature of one of the disk, while Vista and later sends one of the disk into the offline mode and doesn't connect any partition from that disk. You may use Disk Signature Collision Resolving options to avoid such collisions.
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About
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Help

Disk Signature Collision Resolving	
Same signature for both disk	**R-Drive Image** will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a system disk for another computer or only the target disk will be used in yours.
Different signature on the target disk.	**R-Drive Image** will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the source disk.	**R-Drive Image** will change the disk signature on the source disk. Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from the source disk anymore.

4 Verify that the information on the Processing panel is correct and click the Start button

You may add other objects and copy data to several destinations in one process. Select **Add another object to copy** in the Next Selection on the **Processing** panel and click the **Next** button.

You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility

> R-Drive Image will start copying the data from the source to the selected destination place.

When the data is copied, the **Object copied successfully** message will appear.

If some other program (like a file manager) is accessing the partition on which the data is to be restored, the **Cannot lock the disk** message will appear. Close this program or make it stop accessing the partition.

If you copy an entire hard drive to another hard drive, two absolutely identical hard drive will appear in your system. That will confuse it and may cause unpredictable results. To prevent that, a **Disk copied successfully** message will appear. You may turn your system off to disconnect one of the disks, or restart it to disable one of the disk in the BIOS of your system. Under Windows 95/98/Millennium, the target disk will not appear until system restart even if you decide to click the **Cancel** button.

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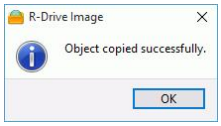
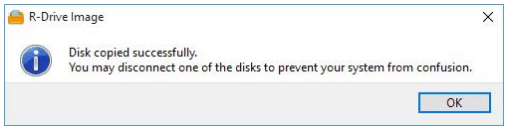


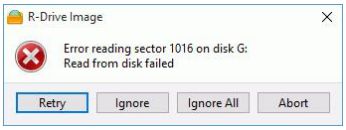


Bad Sectors

When **R-Drive Image** encounters a bad sector, the **IO Error** message will appear. You may either cancel the current action or fill the bad sectors with zeros.

IO Error Options

Abort	Click this button to cancel the action
Retry	Click this button to try to read the bad sectors once again
Ignore	Click this button to skip this error and fill the bad sectors with zeros
Ignore All	Click this button to skip all errors and fill the bad sectors with zeros



The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

2.4 Connect an Image as a Virtual Logical Disk

Note: You can connect images only as **read-only** disks. See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems.

To connect an image as a Virtual Logical Disk:

1 **Click Connect an Image as a Virtual Logical Disk on the Action Selection panel**

R-Drive Image will show you the **Image File Selection** panel with the disks/folders structure.

2 **Select the file with the image on the Image File Selection panel and click the Next button**

When you click the file, you may view its content on the right pane.

More information...

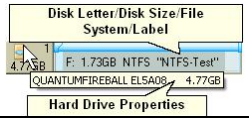
Objects in Image Files Primary partition Logical disk Unallocated space Other partition type	
Image with one logical disk	

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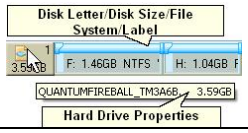
Image with two logical disks on one hard drive	
Image with two logical disks on two hard drives	

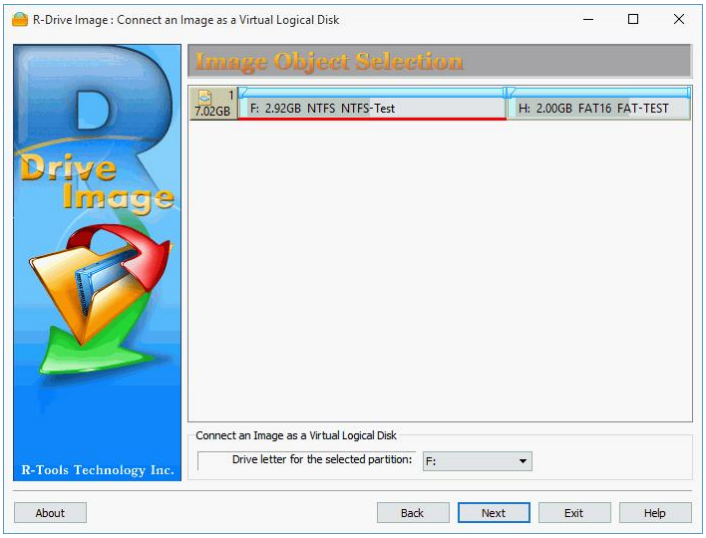
You may select all objects on a hard drive by clicking the hard drive icon. . It will show the marked hard drive.

You may also connect the disk from Windows explorer by right-clicking the required image file with the `.rdr` extension and selecting **Connect as Virtual Disk** from the shortcut menu.

If you select an image with incremental data backup, the **Image Date/Time Selection** panel will appear. Select the date and time of image creation and click the **Next** button.

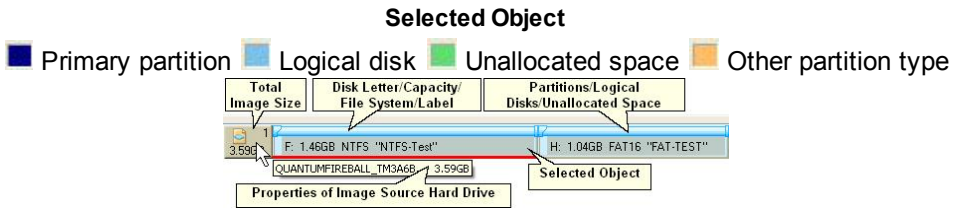
If the image file is password-protected, the **Password prompt...** message will appear. Enter the password and click the **OK** button.

3 Select the object in the image file on the Image Object Selection panel, select a drive letter, and click the Next button



You may select only one object at a time, and you need to specify its drive letter to proceed further.

More information...



4 Verify that the information on the Processing panel is correct and click the Start button

You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility

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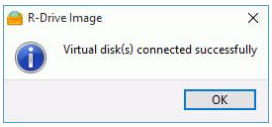
> **R-Drive Image will start connecting the selected object as a virtual logical disk.**

When the disk is connected, the **Virtual disk(s) connected successfully** message will appear.



Connecting images on devices with removable storage

You cannot connect a split image if its files are stored on separate removable disks. However you can connect such image if you copy all the files into one folder on a hard disk.

Note: While **R-Drive Image** is connecting an image, Windows itself may install additional software required to run the virtual logical disks correctly. In this case follow Windows on-screen instructions.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

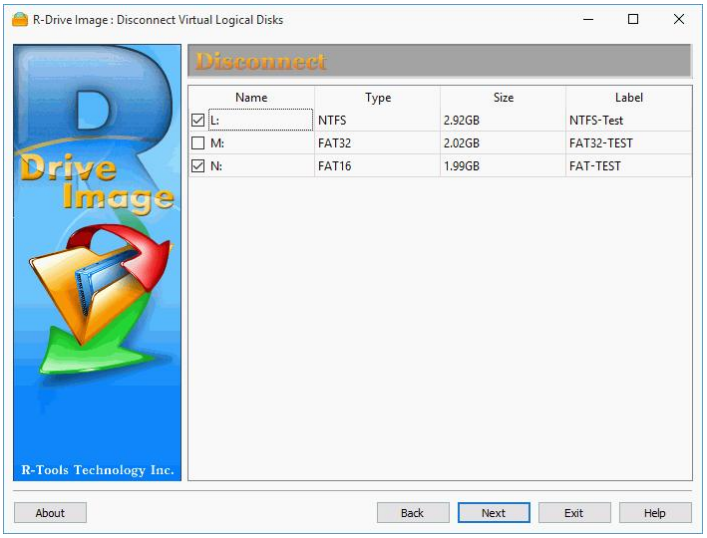
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

2.5 Disconnect Virtual Logical Disks

To disconnect Virtual Logical Disks:

1 **Click Disconnect Virtual Logical Disks on the Action Selection panel**

R-Drive Image will show you the list of virtual disks on the **Connected Virtual Logical Disks** panel.



More information...

Connected Virtual Logical Disks

Name	Type	Size	Label
L:	NTFS	2.92GB	NTFS-Test
M:	FAT32	2.02GB	FAT32-TEST
N:	FAT16	1.99GB	FAT-TEST

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2 **Mark the disks on the Connected Virtual Logical Disks panel and click the Next button**

More information...

Marked Connected Virtual Logical Disks

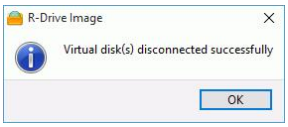
Name	Type	Size	Label
☑ L:	NTFS	2.92GB	NTFS-Test
☐ M:	FAT32	2.02GB	FAT32-TEST
☑ N:	FAT16	1.99GB	FAT-TEST

3 **Verify that the information on the Processing panel is correct and click the Start button**

You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility

> **R-Drive Image will start disconnecting the selected virtual logical disks**

When the disks are disconnected, the **Virtual disk(s) disconnected successfully.** message will appear.



The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

2.6 Check an Image File

To check an image file:

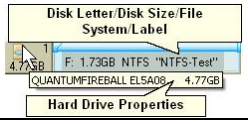
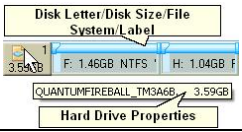
1 **Click Check an Image File on the Action Selection panel**

R-Drive Image will show you the **Image File Selection** panel with the disks/folder structure.

2 **Select the file with the image on the Image File Selection panel and click the Next button**

When you click the file, you may view its content in the right pane.

More information...

Objects in Image Files Primary partition Logical disk Unallocated space Other partition type	
Image with one logical disk	
Image with two logical disks on one hard drive	
Image with two logical disks on two hard drives	

If the image file is password-protected, the **Password prompt...** message will appear. Enter the password

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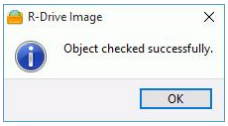
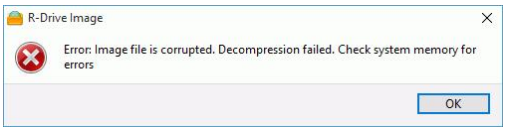
and click the **OK** button.

3 **Verify that the information on the Processing panel is correct and click the Start button**
You may also create a script for this action. Click the **Script to Clipboard** button and paste the script to any text-processing utility

> **R-Drive Image will start checking the data in the image file.**
When the image is checked, the **Object checked successfully** message will appear if the image file is good. If it is corrupted, **R-Drive Image** will show the **Image corrupted** message.





The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

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III RAIDs, and Various Disk and Volume Managers

R-Drive Image supports various RAIDs, and Disk/Volume Managers.

- Hardware RAIDs
- Windows Software RAIDs, Spanned, and Other Volumes
- Windows Storage Spaces
- Apple RAIDs
- Linux Logical Volume Manager Volumes

The Disk Actions chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- Restore Data from an Image
- Copy Disk to Disk to make an exact copy of one disk on another
- Connect an Image as a Virtual Logical Disk **(read-only)**
- Disconnect Virtual Logical Disks
- Check an Image File to check an existing image file

The Startup Version chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- Create Startup Disk
- Restoring Data to a System or Other Locked Disk
- Create an Image Using the Startup Disks
- Disk to Disk Copy Using the Startup Disks

The Scheduled Actions, Command Line Operations, and Scripting chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- Scheduler and Unattended Actions
- Scripting and Command Line Operations
- Backup sets

The Technical Information chapter gives technical information on

- Logging
- Creating consistent point-in-time backups
- Support for Various Disk Partition Schemes and File Systems
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The R-Drive Image OEM kit chapter explains how computer system integrators can create system recovery disks for their systems

- Create a Master Image
- Create Startup Media

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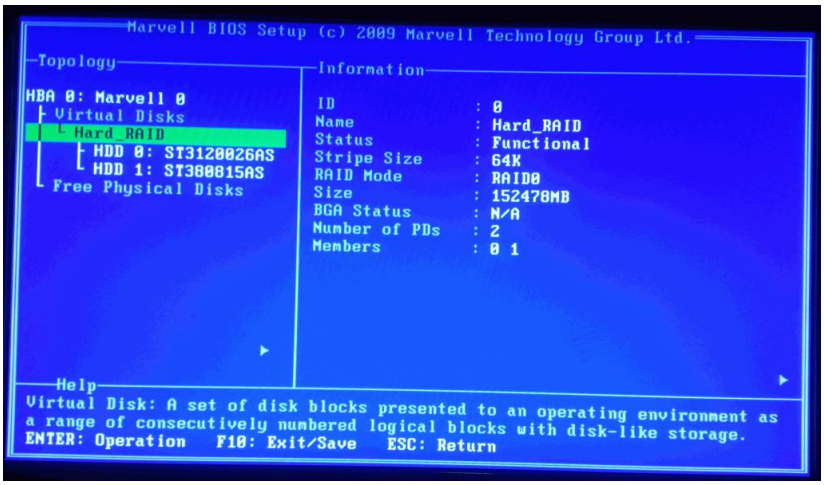
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

3.1 Hardware RAIDs

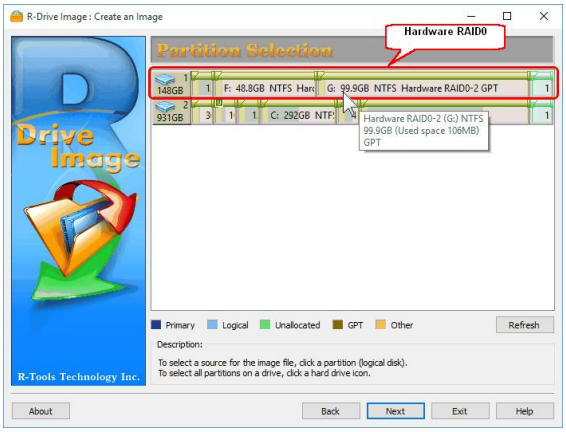
R-Drive Image supports hardware RAIDs created by RAID controllers.

Hardware RAID


Marvell BIOS Setup (c) 2009 Marvell Technology Group Ltd.
Topology
HBA 0: Marvell 0
Virtual Disks
Hard_RAID
HDD 0: ST3120026AS
HDD 1: ST380815AS
Free Physical Disks
Information
ID : 0
Name : Hard_RAID
Status : Functional
Stripe Size : 64K
RAID Mode : RAID0
Size : 152478MB
BGA Status : N/A
Number of PDs : 2
Members : 0 1
Help
Virtual Disk: A set of disk blocks presented to an operating environment as a range of consecutively numbered logical blocks with disk-like storage.
ENTER: Operation F10: Exit/Save ESC: Return

Actually, **R-Drive Image** treats them as single hard disks.

Hardware RAID



Data Restore from an Image of a Hardware RAID

You may restore data from an image of a hardware RAID with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

3.2 Windows Software RAIDs, Mirrors, and Spanned Volumes

R-Drive Image supports Windows software RAIDs, mirrors, and spanned volumes. Such objects can be managed using the **Disk Management** item in **Computer management**.

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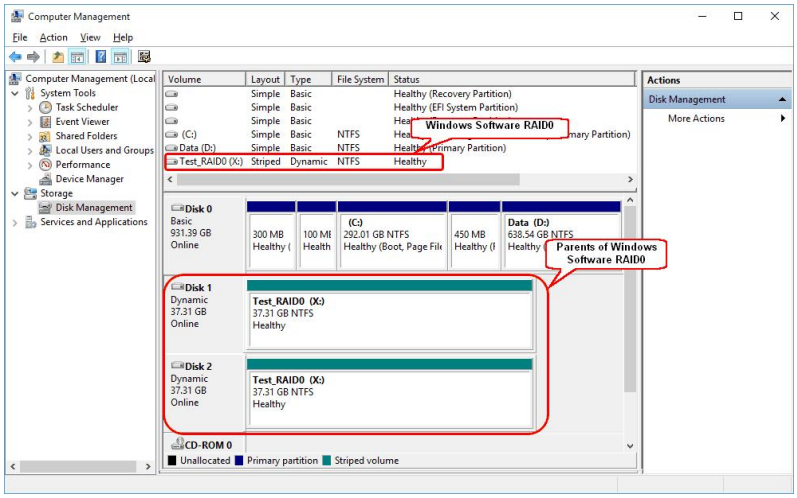
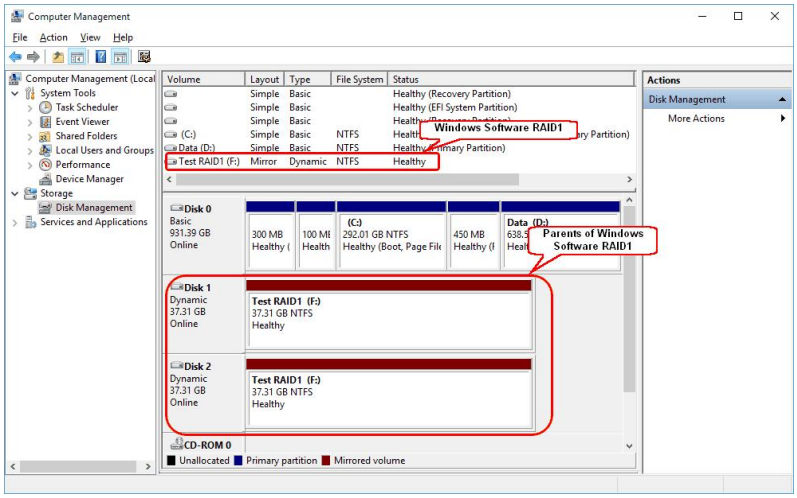
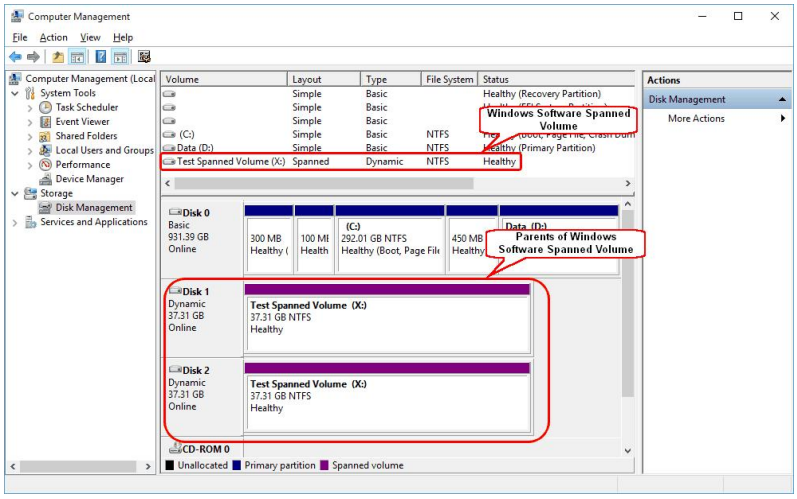
Windows software RAID0



Windows software mirror



Windows software spanned volume



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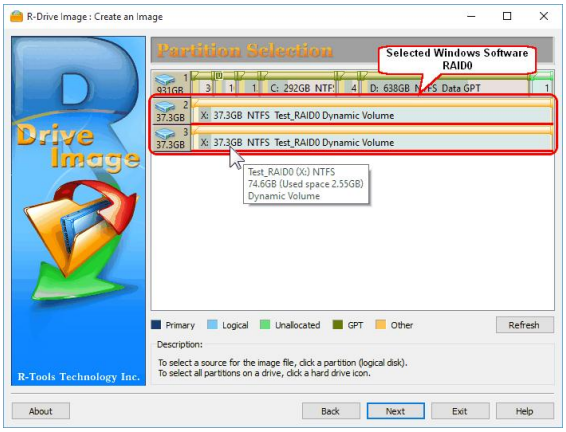
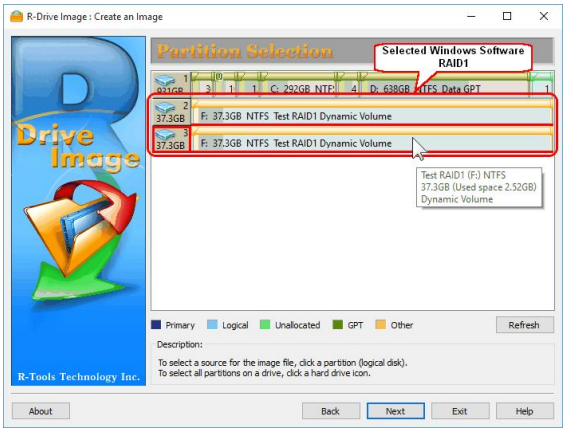
Windows Software RAIDs, Mirrors, and Spanned Volumes Imaging

R-Drive Image displays those objects similar to their representation in the **Windows Disk Manager**.

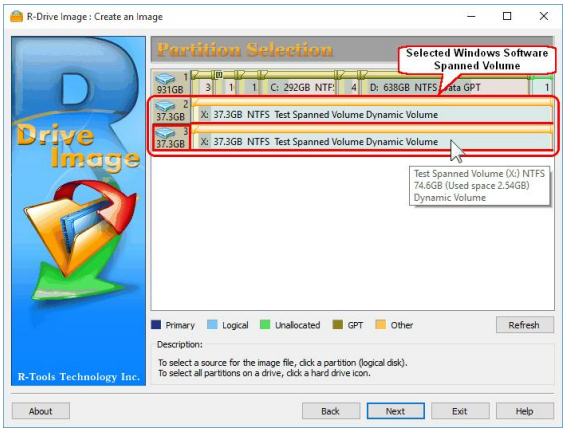
Windows software RAID0



Windows software mirror



Windows software spanned volume


R-Drive Image : Create an Image
Partition Selection
Selected Windows Software Spanned Volume
X: 37.3GB NTFS Test Spanned Volume Dynamic Volume
Test Spanned Volume (X:) NTFS
74.6GB (Used space 2.54GB)
Dynamic Volume
Primary Logical Unallocated GPT Other
Refresh
Description:
To select a source for the image file, click a partition (logical disk).
To select all partitions on a drive, click a hard drive icon.
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About
Back
Next
Exit
Help

When you select one parent of a Windows software RAID, mirror, or spanned volume, **R-Drive Image** selects the entire object.

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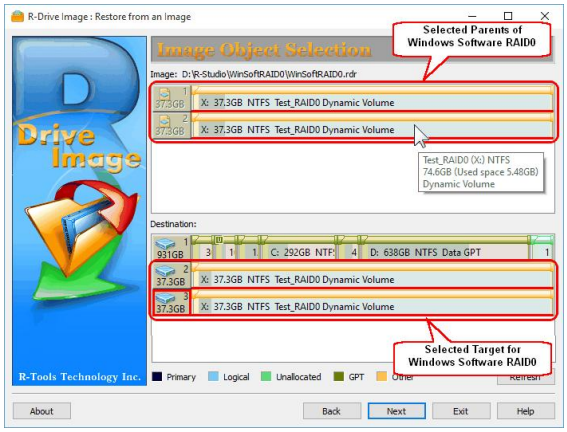
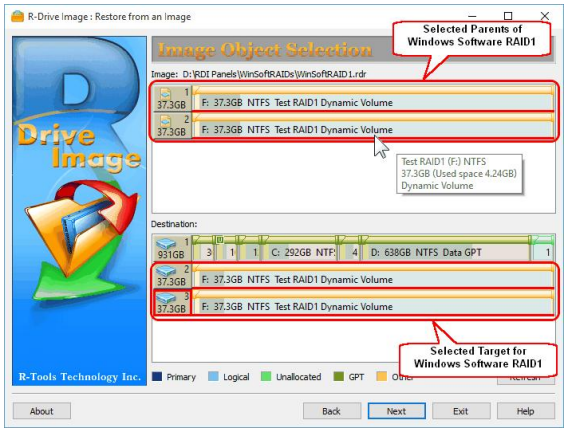
Data Restore from an Image of a Software RAID, Mirror, and Spanned Volume

You may restore data from an image of a Windows software RAID, mirror, and spanned volume with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

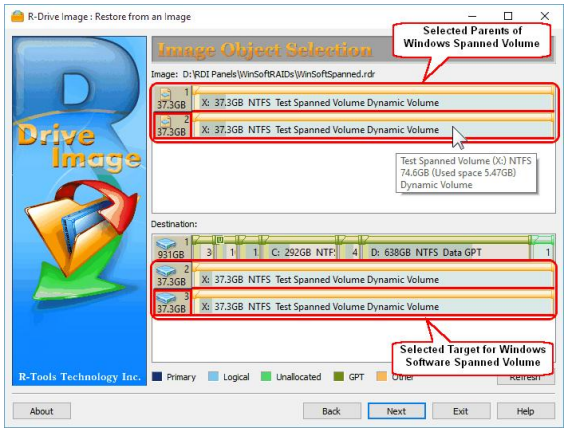
Windows software RAID0



Windows software mirror



Windows software spanned volume



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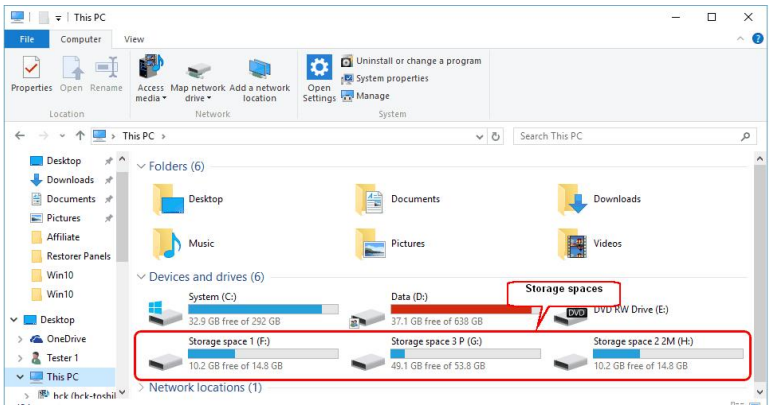
3.3 Windows Storage Spaces

R-Drive Image supports Windows Storage Spaces created by Windows 8/8.1 and Windows 10. Storage pools and spaces is a new storage technology, first introduced in Windows 8 and Windows Server 2012, that allows the user to combine various (not always similar) hard drives into a kind of a RAID or compound volume. First, the hard drives are combined into a storage pool, then several storage spaces with striping (similar to RAID0), mirroring (similar to RAID1), and parity (similar to RAID5) can be created in that storage pool. You may read more about storage pools and spaces in the Microsoft's Storage Spaces: FAQ.

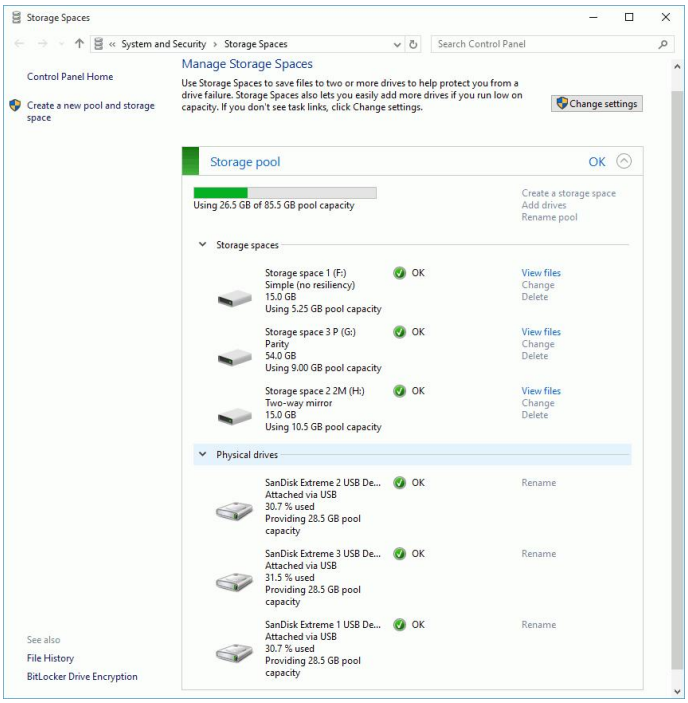
When drives from a storage pool are connected to a Windows computer, it automatically detects them and assembles storage spaces accordingly.

Windows storage spaces



Storage pools and spaces can be managed using the **Storage Spaces** item in the **Control Panel**.

Windows storage spaces


Storage Spaces
System and Security
Storage Spaces
Search Control Panel
Control Panel Home
Create a new pool and storage space
Manage Storage Spaces
Use Storage Spaces to save files to two or more drives to help protect you from a drive failure. Storage Spaces also lets you easily add more drives if you run low on capacity. If you don't see task links, click Change settings.
Change settings
Storage pool
OK
Using 26.5 GB of 85.5 GB pool capacity
Create a storage space
Add drives
Rename pool
Storage spaces
Storage space 1 (F:)
Simple (no resiliency)
15.0 GB
Using 5.25 GB pool capacity
Storage space 3 P (G:)
Parity
54.0 GB
Using 9.00 GB pool capacity
Storage space 2 2M (H:)
Two-way mirror
15.0 GB
Using 10.5 GB pool capacity
View files
Change
Delete
Physical drives
SanDisk Extreme 2 USB De...
Attached via USB
30.7 % used
Providing 28.5 GB pool capacity
SanDisk Extreme 3 USB De...
Attached via USB
31.5 % used
Providing 28.5 GB pool capacity
SanDisk Extreme 1 USB De...
Attached via USB
30.7 % used
Providing 28.5 GB pool capacity
Rename
See also
File History
BitLocker Drive Encryption

R-Drive Image can image Windows Storage Spaces and then restore data to them with some restrictions.

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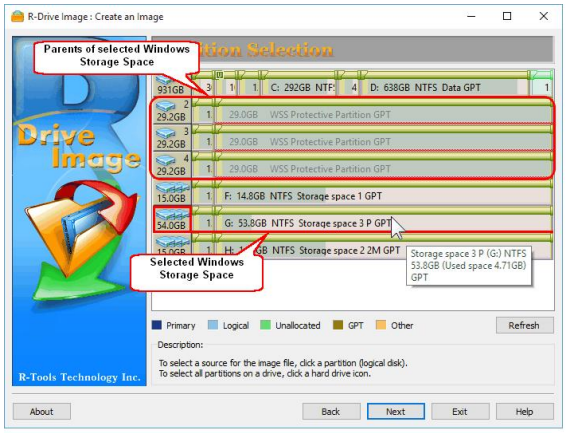
Windows Storage Space Imaging

R-Drive Image displays both Windows Storage Spaces and their parents on the **Partition Selection** panel.

Windows storage spaces

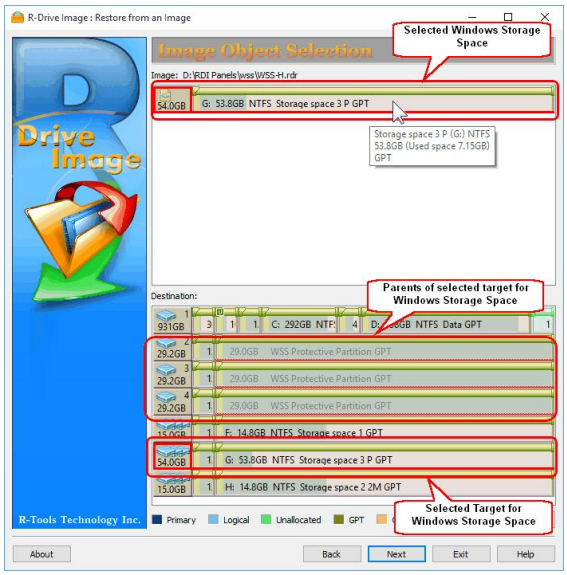


When you select a certain Windows Storage Space, **R-Drive Image** also shows its respective parents.

Data Restore from an Image of a Windows Storage Space

You may restore data from an image of a Windows Storage Space with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

Windows storage spaces



Please, note that **R-Drive Image** can restore data only to fixed-provisional Windows Storage Spaces if the Windows version doesn't support Windows Storage Spaces. The startup version of **R-Drive Image** can restore data only to fixed-provisional Windows Storage Spaces, too. You may read more about thin-provisioned or fixed Windows Storage Spaces in **Microsoft's Storage Spaces Overview**.

3.4 Apple RAIDs

R-Drive Image supports various software RAIDs that OS X can create from disks connected to a Mac computer: RAID1 (Mirror set), RAID0 (Stripe set), and Concatenated disk set.

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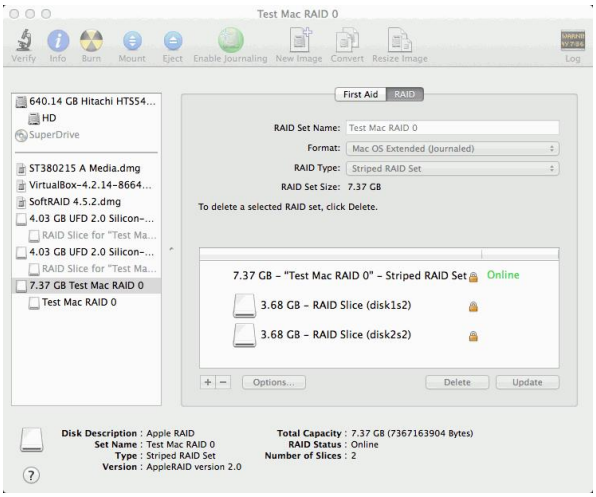
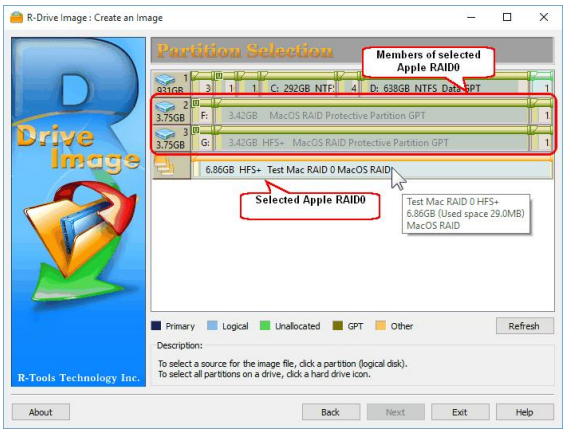
Apple RAID0 example



Apple RAIDs Imaging

R-Drive Image displays both Apple RAIDs and their members on the **Partition Selection** panel.

Apple RAID0



When you select a certain Apple RAID, **R-Drive Image** also shows its respective members.

Data Restore from an Image of a Apple RAID

You may restore data from an image of a Apple RAID with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

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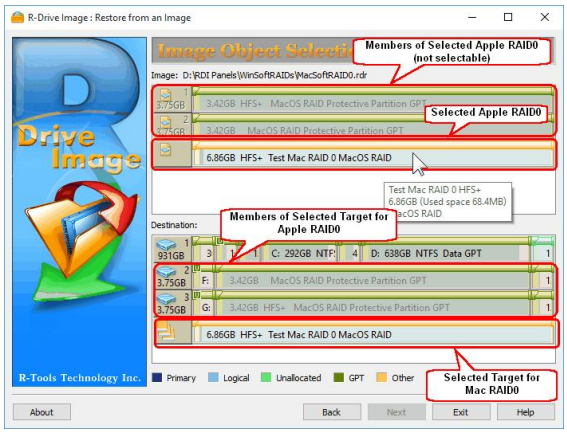
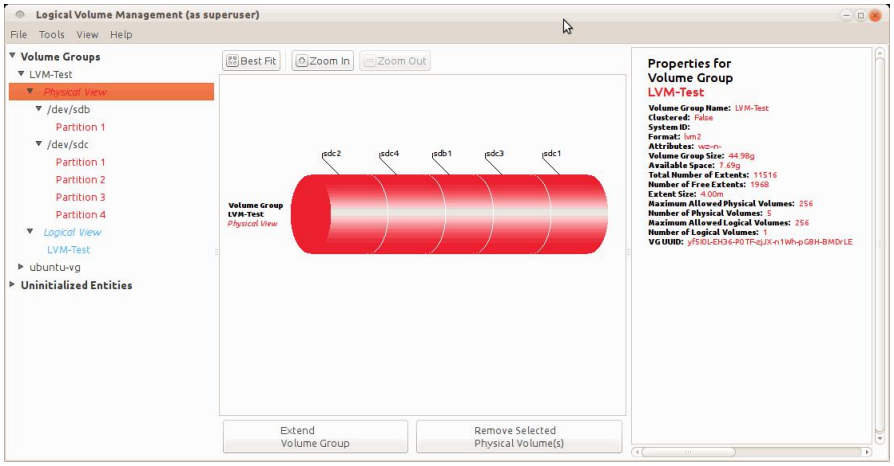
Apple RAID0



3.5 Linux Logical Volume Manager Volumes

Linux LVM is a logical volume manager for the Linux OS that manages disk drives and other data storage devices. Using it, It is possible to create single logical volumes on several physical disks, add and replace them in a running system, resize logical volumes, create various RAID configuration, and so on. You may read more about Linux LVM on this Wikipedia article: Logical Volume Manager (Linux).

LVM volume example



LVM volume Imaging

R-Drive Image displays both LVM volumes and their components on the **Partition Selection** panel.

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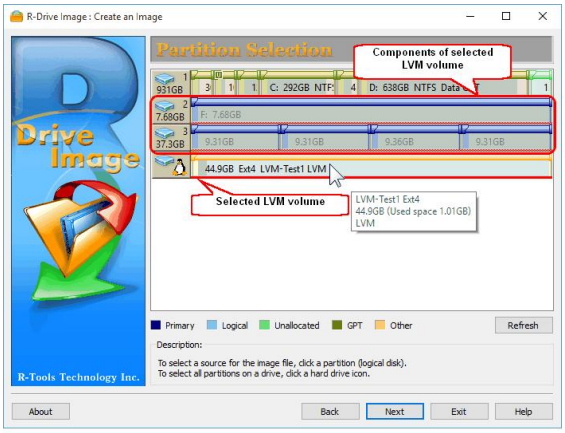
LVM Volume

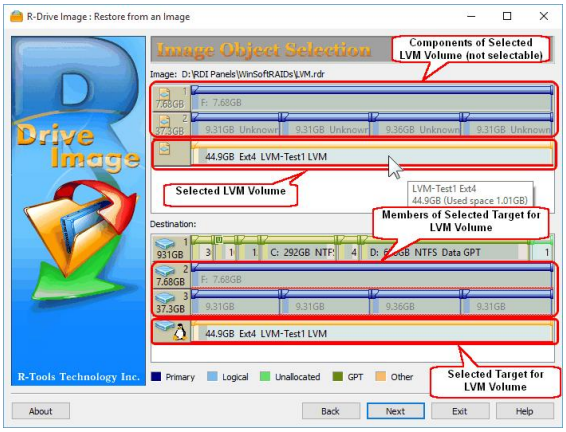


When you select a certain LVM volume, **R-Drive Image** also shows its respective members.

Data Restore from an Image of a LVM volume

You may restore data from an image of a LVM volumes with the limitations described in the **Support for Various Disk Partition Schemes and File Systems** section.

LVM Volume



IV Startup Version

This chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- **Create Startup Disk**
- **Load Computer into Startup Mode**
- **Restore Data From an Image**
- **Create an Image**
- **Disk to Disk Copy**
- **Check an Image File**
- **Network Drives**

The **Disk Actions** chapter explains disk actions such as:

- **Create an Image** of a partition, logical disk, or entire hard drive

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- **Restore Data from an Image**
- **Copy Disk to Disk** to make an exact copy of one disk on another
- **Connect an Image as a Virtual Logical Disk** **(read-only)**
- **Disconnect Virtual Logical Disks**
- **Check an Image File** to check an existing image file

The **RAIDs, and Various Disk and Volume Managers** chapter explains how to perform disk actions with various compound volumes such as:

- **Windows Software RAIDs, Spanned, and Other Volumes**
- **Windows Storage Spaces**
- **Mac RAIDs**
- **Linux Logical Volume Manager Volumes**

The **Scheduled Actions, Command Line Operations, and Scripting** chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- **Scheduler and Unattended Actions**
- **Scripting and Command Line Operations**
- **Backup sets**

The **Technical Information** chapter gives technical information on

- **Creating consistent point-in-time backups**
- **Support for Various non-MBR/GPT Partition Layouts**
- **Supported CD and DVD Recorders**
- **List of Hardware Devices Supported in the Startup Mode**

The **R-Drive Image OEM kit** chapter explains how computer system integrators can create system recovery disks for their systems

- **Create a Master Image**
- **Create Startup Media**

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

4.1 Create Startup Disks

You need to create a startup CD/DVD disc, USB removable storage device, or 6 floppy disks to restore data to a system or other locked disk. You may also create an ISO image of a startup CD disc and burn it using your favorite CD writing software.

If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the list of supported hardware.

If you have problems with starting you computer up from the **R-Drive Image** startup disks, select **configure startup media troubleshooting options**. Then the **Startup Media Troubleshooting Options** panel will appear. You may configure these options to eliminate those problems.

Those options will help you if you have problems with starting you computer up from the **R-Drive Image** startup disks. Please, contact the **R-Drive Image Technical Support Team** for more information.

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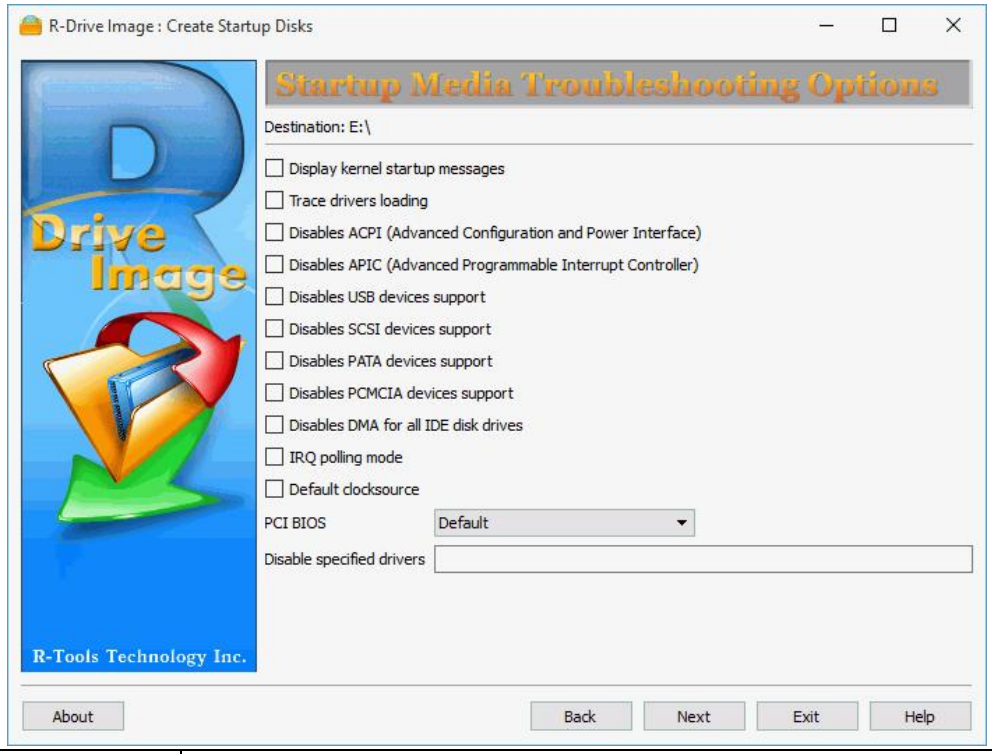

Display kernel startup messages	if this checkbox is enabled, **R-Drive Image** displays all startup messages. That may be useful to locate the source of the problem when your system hangs during **R-Drive Image** startup.
Trace drivers loading	Select this checkbox when you want to see loading drivers to find which one may lock the system.
Disables ACPI Disables APIC	Select these checkboxes when your system detects some hardware incorrectly during **R-Drive Image** startup and displays messages like: `hda: lost interrupt`
Disables USB devices support	Select these checkbox if your system experiences problems with USB devices during **R-Drive Image** startup.
Disables SCSI devices support	Select these checkbox if your system experiences problems with SCSI devices during **R-Drive Image** startup.
Disables PATA devices support	Select these checkbox if your system experiences problems with Parallel ATA devices during **R-Drive Image** startup.
Disables PCMCIA devices support	Select these checkbox if your system experiences problems with PCMCIA devices during **R-Drive Image** startup.
Disables DMA for all IDE disk drives	Select these checkbox if your system experiences problems with IDE disks during **R-Drive Image** startup.
IRQ polling mode	Select this checkbox if **R-Drive Image** does not recognize a device although it is in the supported device list.
Default clocksource	Select this checkbox to select computer default clocksource.
PCI BIOS	Select an appropriate option if your system experiences problems with PCI cards.
Disable specified drivers	Enter the drivers that may cause system lock. Driver names should be separated by a space or comma.

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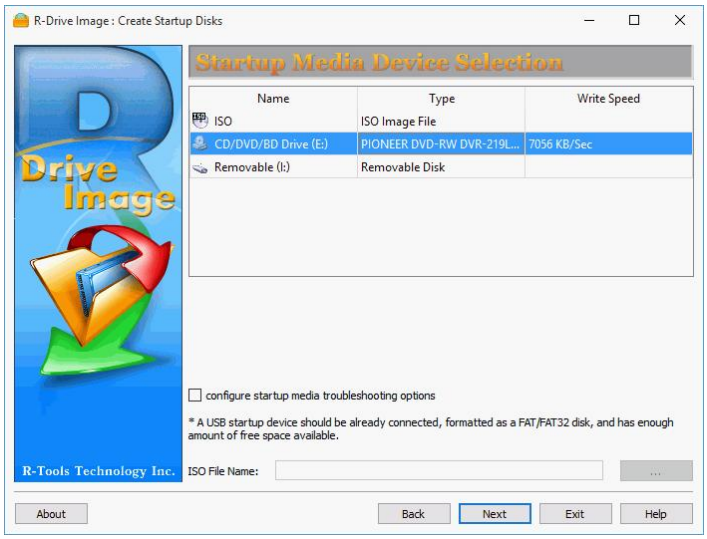
To create a startup CD disc:

Supported CD and DVD Recorders

1 Select **Create Startup Disks** on the **Action Selection** panel and click the Next button



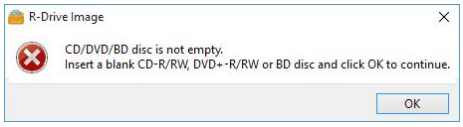
2 Select the CD-recorder in the list of supported startup devices with removable storage on the **Removable Storage Device Selection** panel and click the Next button

3 Click the Start button on the **Processing** panel

> **R-Drive Image will start creating the startup CD disc**

When you click the **Start** button, **R-Drive Image** will open the CD-R/RW drive tray and the **Insert a blank CD-R/RW disc...** message will appear. Insert a blank CD-R/RW disc and click the **OK** button. When **R-Drive Image** finishes creating the startup CD disc, the **Startup disks created successfully** message will appear.

If you mistakenly insert a non-empty CD-R/RW disc, the **CD-R/RW disc is not empty...** message will appear. Change the disc to another empty CD-R/RW disc and click the **OK** button.



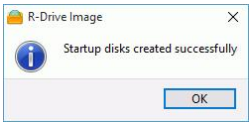
To create an ISO image:

1 Select **Create Startup Disks** on the **Action Selection** panel and click the Next button

2 Select **ISO** on the **Removable Storage Device Selection** panel, specify a file name for the ISO image, and click the Next button

3 Click the Start button on the **Processing** panel

> When **R-Drive Image** finishes writing the file with the ISO image, the **Startup disks created successfully** message will appear



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4 **Create the startup CD using your favorite CD creation software**

Load the created ISO image into the CD creation software. Consult documentation for the software for details.

To create a startup USB removable device:

It may be a USB flash disk, ZIP drive, etc. It should be FAT/FAT32 formatted and connected to the computer before selecting **Create Startup Disks** on the **Action Selection** panel. If there is some data on that device, it will not be overwritten.

1 **Select Create Startup Disks on the Action Selection panel and click the Next button**

2 **Select the required removable device in the list of supported startup devices with removable storage on the Removable Storage Device Selection panel and click the Next button**

3 **Click the Start button on the Processing panel**

> **R-Drive Image will start creating the startup USB disc**

When **R-Drive Image** finishes creating the startup USB disk, the **Startup disks created successfully** message will appear.

To create 6 floppy disks:

1 **Select Create Startup Disks on the Action Selection panel and click the Next button**

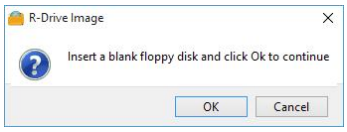
2 **Select the floppy disk drive in the list of supported startup devices with removable storage on the Removable Storage Device Selection panel and click the Next button**

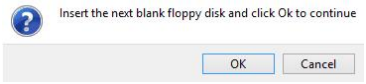
3 **Click the Start button on the Processing panel**

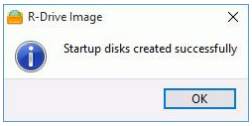
> **R-Drive Image will start creating the startup disks**

The **Insert a blank floppy disk** message will appear. Insert a blank floppy disk and click the **OK** button. Then the **Insert the next blank floppy disk...** message will appear. Insert the second floppy disk and click the **OK** button. When **R-Drive Image** finishes creating the startup floppy disks, the **Startup disks created successfully** message will appear, and so on.

Note: It is recommended that you mark the floppy disks accordingly.







The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

4.2 Load Computer into Startup Mode

Sometimes you may need to start your computer into **R-Drive Image** startup mode, for example, to restore data to a system disk.

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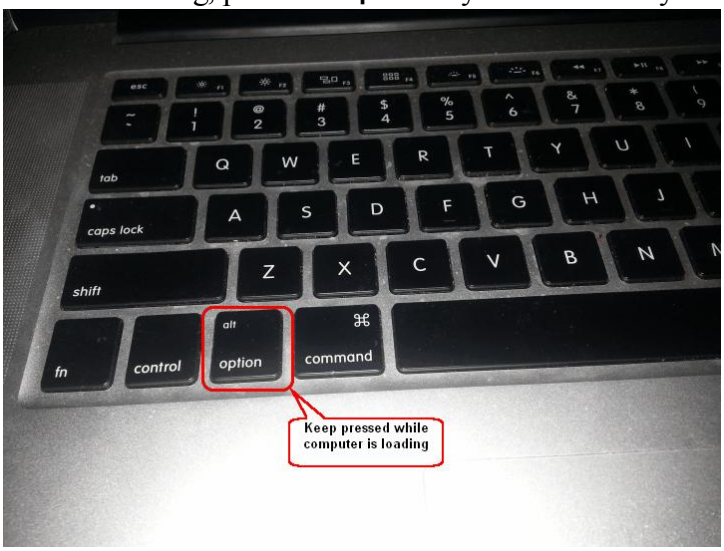
You may do that through the following methods:

If you have a Mac computer...

The startup version of **R-Drive Image** can perform basic disk imaging operations for Mac computers. See the Support for Various Disk Partition Schemes and File Systems section for details.

To start a Mac computer with the **R-Drive Image** startup disk,

1. Insert a CD/DVD disc or connect a USB disk
2. Switch the Mac on.
3. While loading, press the **Option** key on the Mac keyboard (the **Alt** key if you use a non-Apple keyboard).



4. Select the **EFI boot** disk and press **Enter**.

From the R-Drive Image Graphical User Interface

Note: You cannot use this method if your computer uses UEFI to start up. Use external startup media, like a USB or CD disk instead.

1. Select the file with the image, the object in the image file, select the system disk as the destination as it is described in the Restore Data from an Image topic. Do not pay much attention to the image file, as it will

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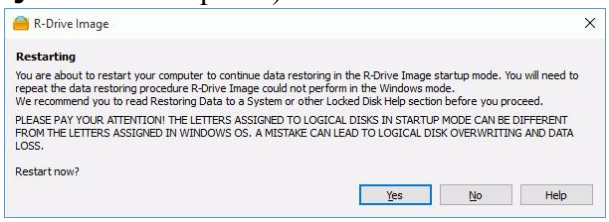
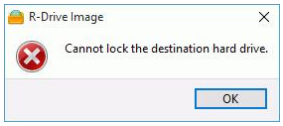
be eventually discarded. The only important option at this stage is the image destination. Select the system disk.

2. When you click the **Next** button on the **Image Object Selection** panel, the **Disk not locked** message will appear.
3. Select **Restart computer (recommended)** and click the **OK** button. The **You are about to restart...** message will appear. Click the **Yes** button. (If you click the **Cancel** button on the **Disk not locked** message, the **Cannot lock the disk** message will appear, and **R-Drive Image** will stay on the **Image Object Selection** panel.)


R-Drive Image
Restarting
You are about to restart your computer to continue data restoring in the R-Drive Image startup mode. You will need to repeat the data restoring procedure R-Drive Image could not perform in the Windows mode.
We recommend you to read Restoring Data to a System or other Locked Disk Help section before you proceed.
PLEASE PAY YOUR ATTENTION! THE LETTERS ASSIGNED TO LOGICAL DISKS IN STARTUP MODE CAN BE DIFFERENT FROM THE LETTERS ASSIGNED IN WINDOWS OS. A MISTAKE CAN LEAD TO LOGICAL DISK OVERWRITING AND DATA LOSS.
Restart now?
Yes
No
Help



You computer will restart. The following text will appear on the screen:

```
Please select the operating system to start:

R-DriveImage Autopart v.2.0
Microsoft Windows XP Professional
```

4. Select **R-DriveImage Autopart v.2.0** and press the **Enter** button. You may select **Microsoft Windows XP Professional** to start Windows normally.

using the R-Drive Image startup floppy disks

1. Make sure that the first startup device in the system BIOS is A (Floppy). Disable "Secure boot" in the system BIOS if your computer is certified to run Windows 8. Refer to your system documentation for details.
2. Insert the first startup floppy disk and start your computer.

The following text will appear on the screen:

```
Loading.............................
.....................................
Uncompressing R-Drive Image... OK, starting the kernel
VFS: Insert the second R-Drive Image boot disk and press ENTER
```

3. Insert the second disk and press ENTER.

using the R-Drive Image startup CD disc or USB disk

1. Make sure that the first startup device in the system BIOS is the required drive. Disable "Secure boot" in the system BIOS if your computer is certified to run Windows 8. Refer to your system documentation for details.
2. Insert the CD disc or connect the USB disk and start your computer.

R-Drive Image will start in the startup mode.

The following text will appear on the screen:

```
Loading kernelcd.........................
.....................................
loading rdrive.fs.....................ready.
Decompressing...   Parsing ELF...  done.
Starting the kernel.
```

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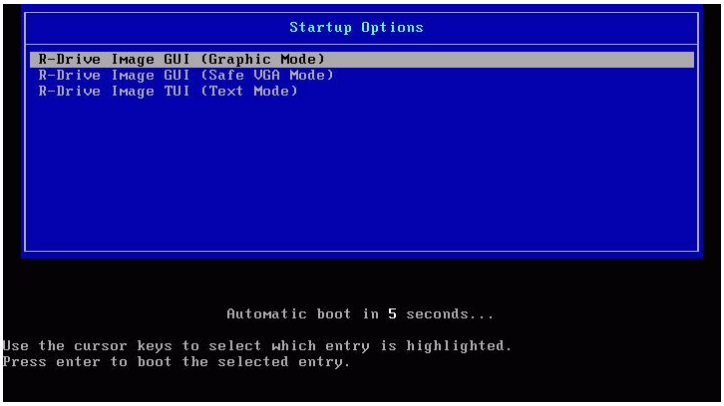
Then a startup screen will appear:


Startup Options
R-Drive Image GUI (Graphic Mode)
R-Drive Image GUI (Safe VGA Mode)
R-Drive Image TUI (Text Mode)
Automatic boot in 5 seconds...
Use the cursor keys to select which entry is highlighted.
Press enter to boot the selected entry.

Select the **R-Drive Image GUI (Graphic Mode)** to run **R-Drive Image** in the graphic mode in which its user interface is similar to the Windows version. if **R-Drive Image** cannot run in this mode, restart the system in the Safe VGA mode (only VESA-compliant) which is compatible with most video cards and monitors. If it fails too, select the Text mode in which the **R-Drive Image** user interface is shown in the pseudo-graphic mode compatible with all video cards. The help below describes this pseudo-graphic mode.

Use the **Tab** key to switch between the control areas and the arrow keys to select options within the control areas. Press the **Enter** key to activate the selected button.

You may also activate a key by pressing the highlighted letter key. You may exit the program by pressing the **x** key.

Secure boot:

It may be impossible to start a Windows 8 certified computer with the R-Drive Image startup disk without some additional actions. This happens because any computer should use a so-called "Secure boot" procedure to comply with Windows 8 hardware certification from Microsoft. In brief, this procedure prevents computer from booting into any operating system that isn't digitally signed with an appropriate digital signature. "Secure boot" is claimed to prevent unauthorized modification of the boot sector by bootkits, viruses, trojans, and other malicious software. To the date, only Windows 8, Windows Server 2012, and selected Linux distributions support this feature. As a side effect, it also prevents most LiveCDs, rescue disks (R-Studio and R-Drive Image included), and other OS from running.

Likely enough, the other requirement of Windows 8 hardware certification is to make it possible for the user to disable the Secure boot procedure. Those settings can be done through the system BIOS under the Boot options. Generally, it's enough to enable Legacy support in those options, but sometimes it may require additional actions. Please, refer to your system documentation to learn more about disabling/enabling Secure boot.

When Secure boot is disabled, it should be possible to start the computer with the R-Drive Image startup disk.

Please note that you should enable this feature back after using the startup disks because Windows 8 or Server 2012 may not start properly without the Secure boot feature enabled.

4.3 Restore Data from an Image

Restoring data to a system or other locked disk:

You cannot restore data to the system (the disk from which Windows starts) or other locked disk the same way you do that to any other disk. You need either to restart **R-Drive Image** in its startup mode, or start your

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computer from another computer local disk or from specially created startup disk(s).

We recommended that you print out this topic and have the hardcopy on hand while you are performing this action.

If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the List of Hardware Devices Supported in the Startup Mode.

If you plan to use any external device, turn it on before starting the system.

If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

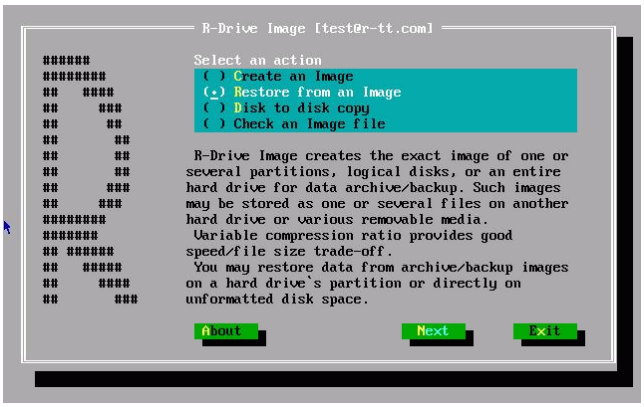
Please, note that the startup version of **R-Drive Image** can restore data only to fixed-provisional Windows Storage Spaces You may read more about thin-provisioned or fixed Windows Storage Spaces in **Microsoft's Storage Spaces Overview**.

We recommend you stop all other programs before you start restoring data on a partition.

1 **Restart your computer in the startup mode**

2 Select **Restore from an Image** on the **Action Selection** panel and press the N key

Action Selection Panel


R-Drive Image [test@r-tt.com]
Select an action
( ) Create an Image
(•) Restore from an Image
( ) Disk to disk copy
( ) Check an Image file
R-Drive Image creates the exact image of one or several partitions, logical disks, or an entire hard drive for data archive/backup. Such images may be stored as one or several files on another hard drive or various removable media.
Variable compression ratio provides good speed/file size trade-off.
You may restore data from archive/backup images on a hard drive's partition or directly on unformatted disk space.
About
Next
Exit

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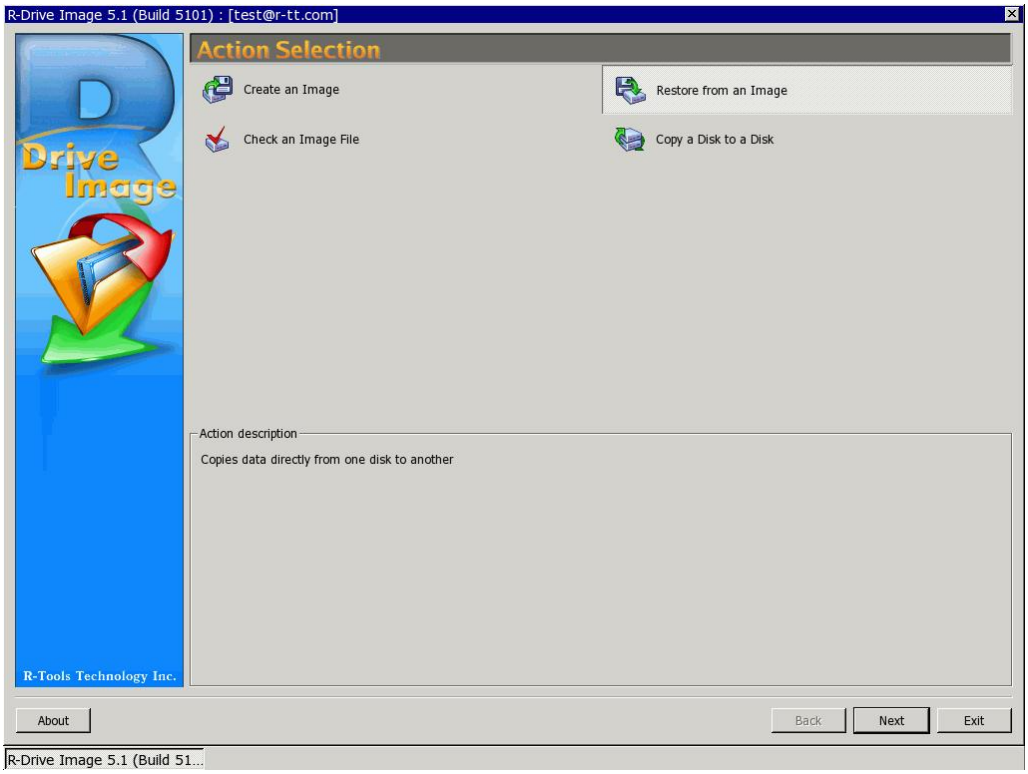
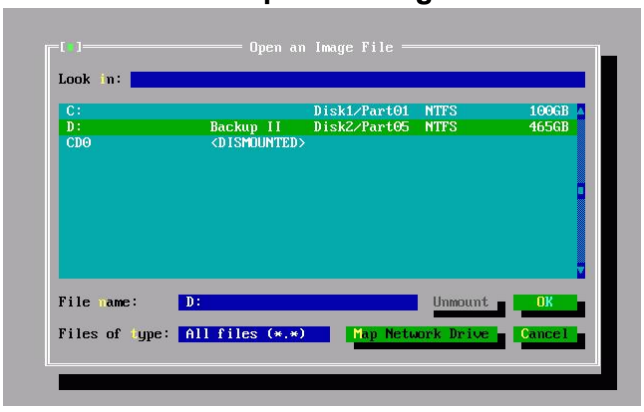


Use the arrow keys to switch between the options.

3 Select the file with the image on the Open an Image File panel and press the Enter key

Open an Image File Panel



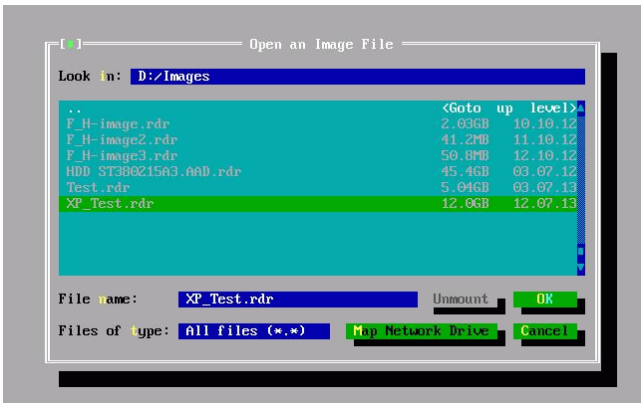


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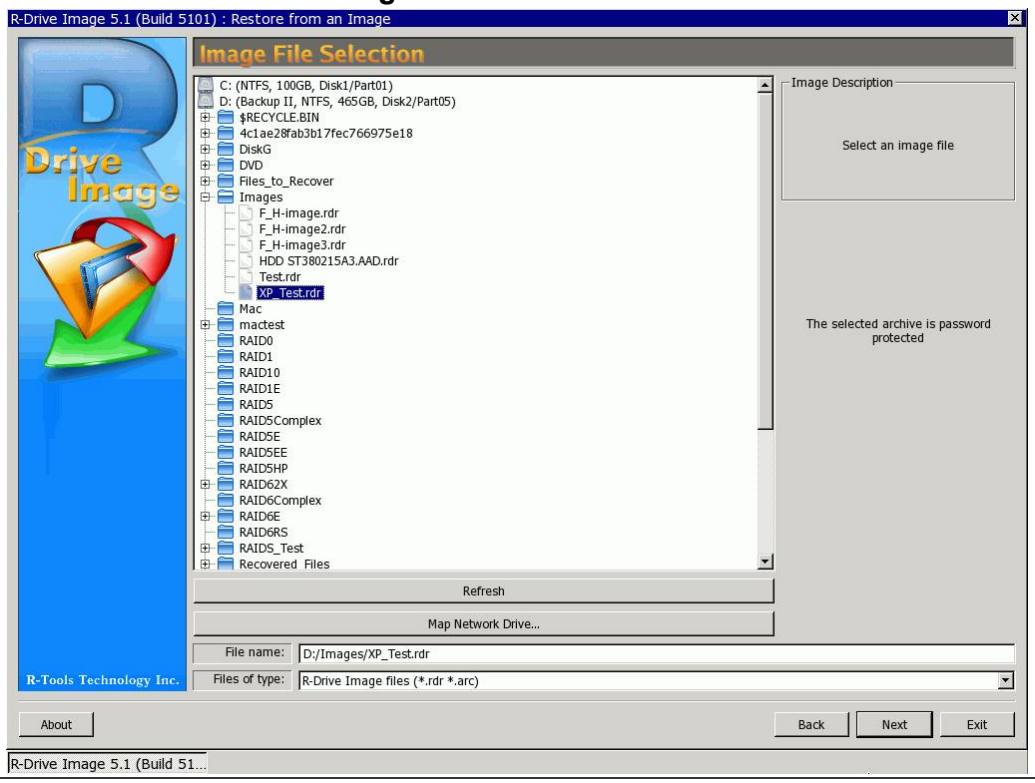
Image File Selection Panel



R/O	Read-only disk. You cannot create images on such disks.

Use the **Tab** key to switch between the control areas and the arrow and **Enter** keys to navigate within the **File** area.

You may also connect network drives.

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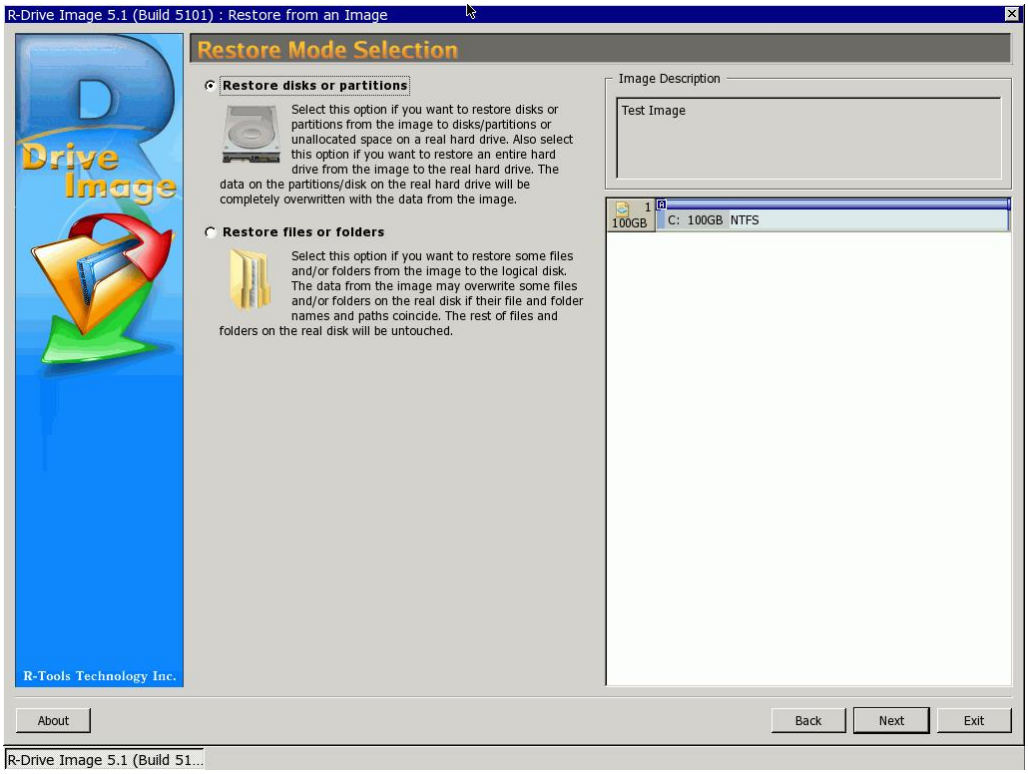
4 **For the R-Drive Image GUI (Graphic Mode): Select what you want to restore: an entire disk/partition or selected folders and file on the Restore Mode Selection panel, and click the Next button**


R-Drive Image 5.1 (Build 5101) : Restore from an Image
Restore Mode Selection
Restore disks or partitions
Select this option if you want to restore disks or partitions from the image to disks/partitions or unallocated space on a real hard drive. Also select this option if you want to restore an entire hard drive from the image to the real hard drive. The data on the partitions/disk on the real hard drive will be completely overwritten with the data from the image.
Restore files or folders
Select this option if you want to restore some files and/or folders from the image to the logical disk. The data from the image may overwrite some files and/or folders on the real disk if their file and folder names and paths coincide. The rest of files and folders on the real disk will be untouched.
Image Description
Test Image
1
100GB
C: 100GB NTFS
R-Tools Technology Inc.
About
Back
Next
Exit
R-Drive Image 5.1 (Build 51...

Restoring selected files and folders will be explained below in the Restoring selected files and folders section.

5 **Select the object in the image file on the Select an object panel you want to restore data from and press the N key**

Select Source Object Panel

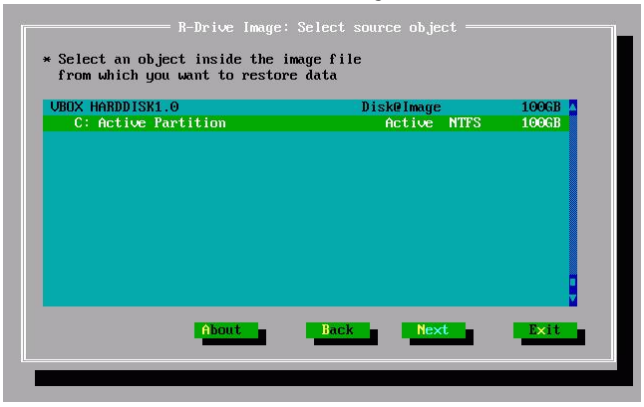


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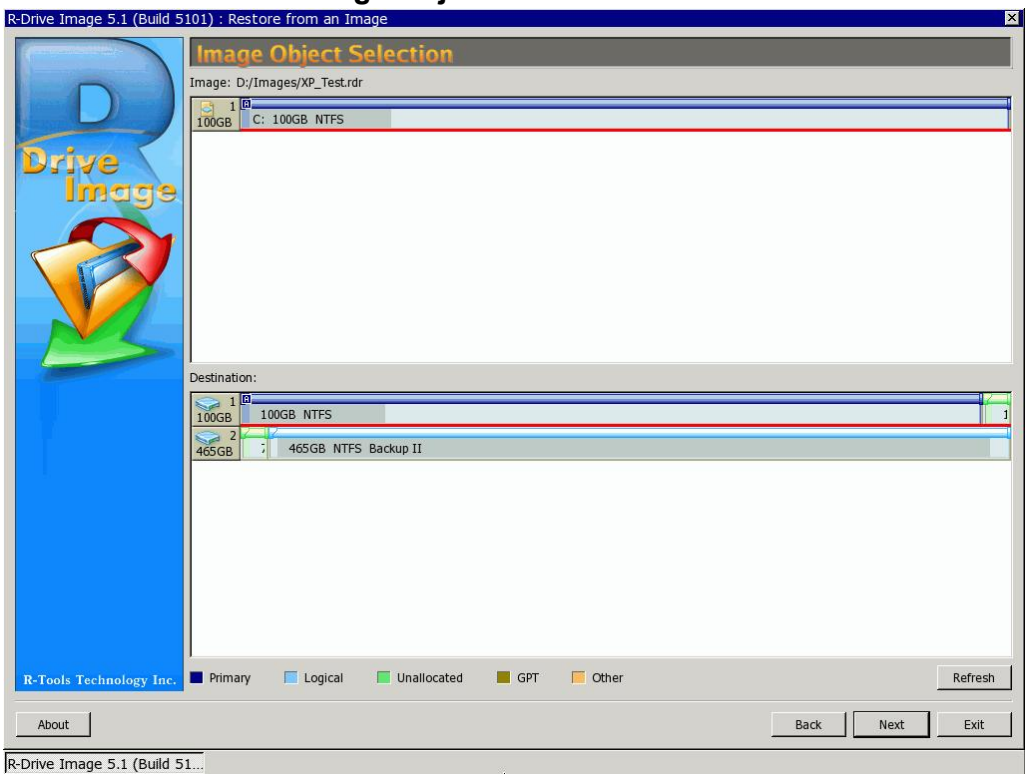
Image Object Selection Panel



Use the arrow keys to select the object.

6 **Select time and data of the data to restore on the Select Image Date/Time panel and press the N key**

Use the arrow keys to select the object

7 **Select the destination for the data on the Select a target for copy/restore operation panel and press the N key**

Select Target Object Panel

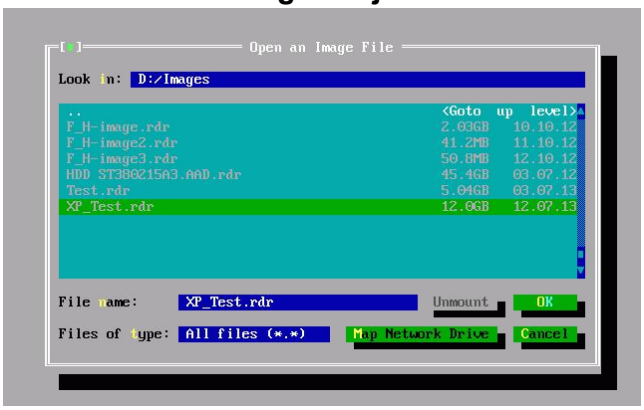


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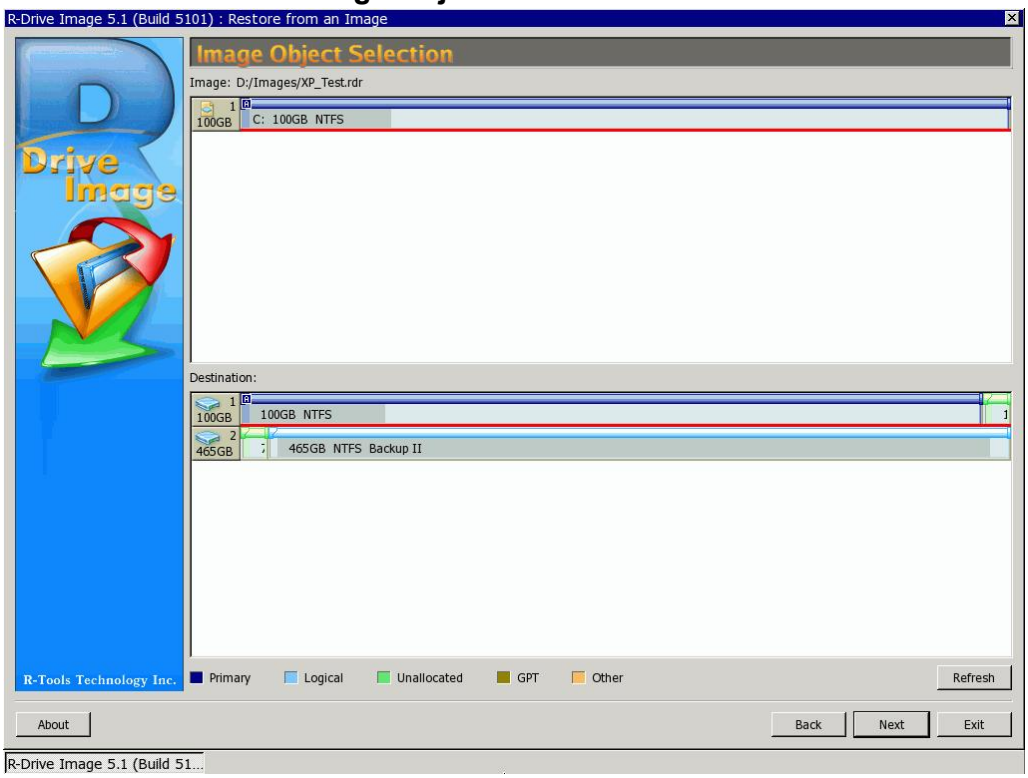
Image Object Selection Panel

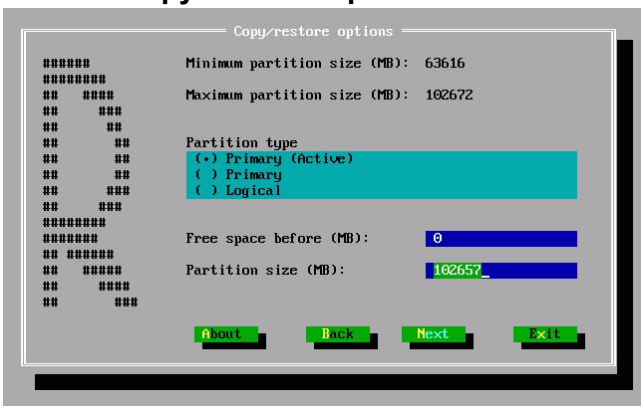


Use the arrow keys to switch between the target objects.

H	Hard drive
P	Primary partition
L	Logical disk
U	Unallocated space

8 Specify restore parameters on the Copy/restore options panel and press the N key

Copy/Restore Options Panel



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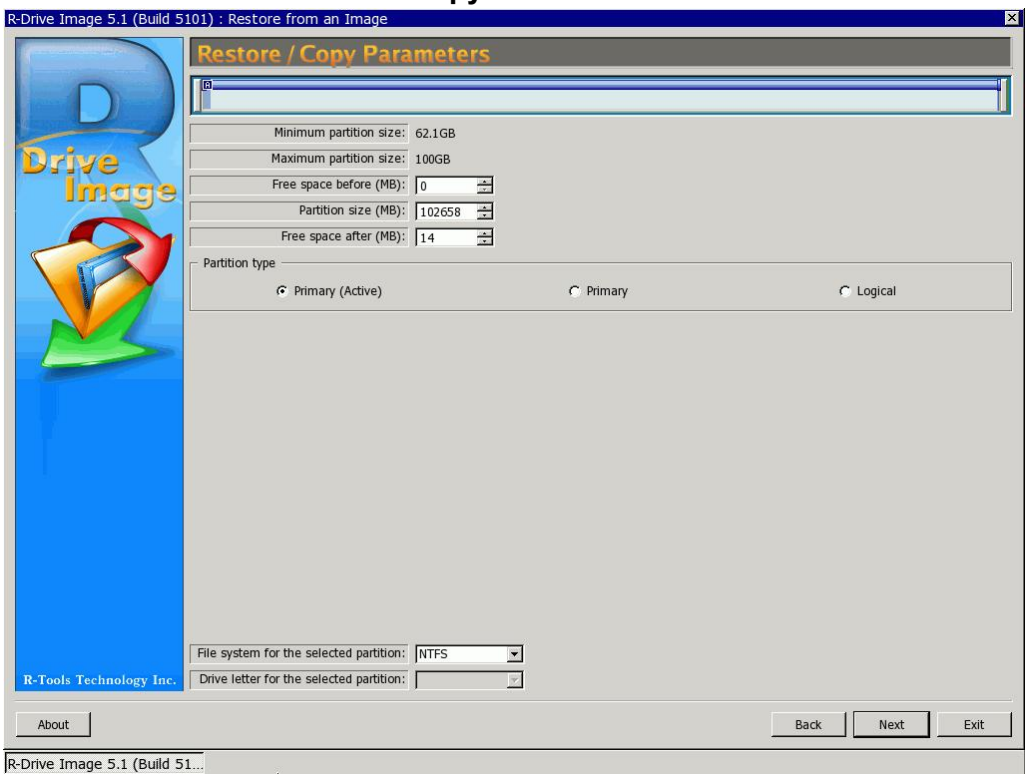
Restore/Copy Parameters Panel

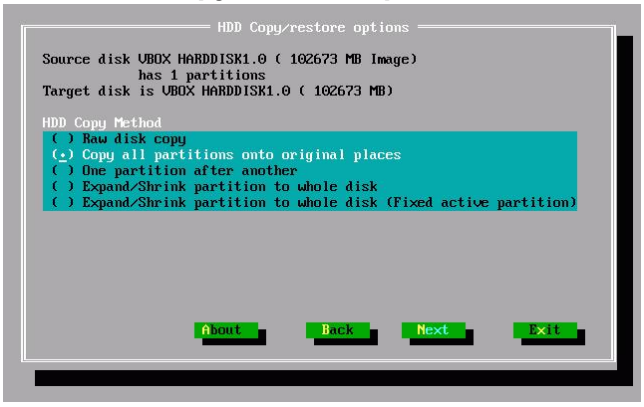


For restoring/copying one or several partition(s):

Restore Options	
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Partition type Primary(Active) Primary Logical	You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.

For restoring/copying an entire hard drive to another hard drive:

HDD Copy/Restore Options Panel


HDD Copy/restore options
Source disk VBOX HARDDISK1.0 (102673 MB Image)
has 1 partitions
Target disk is VBOX HARDDISK1.0 (102673 MB)
HDD Copy Method
( ) Raw disk copy
(•) Copy all partitions onto original places
( ) One partition after another
( ) Expand/Shrink partition to whole disk
( ) Expand/Shrink partition to whole disk (Fixed active partition)
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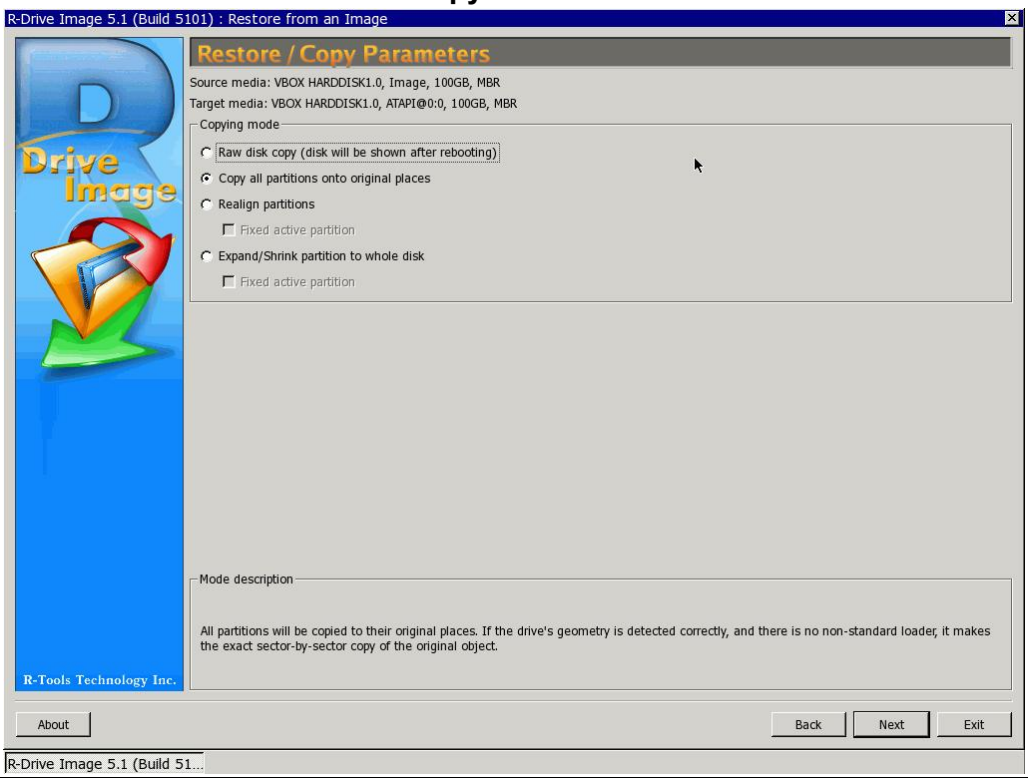
Restore/Copy Parameters Panel


R-Drive Image 5.1 (Build 5101) : Restore from an Image
Restore / Copy Parameters
Source media: VBOX HARDDISK1.0, Image, 100GB, MBR
Target media: VBOX HARDDISK1.0, ATAPI@0:0, 100GB, MBR
Copying mode
Raw disk copy (disk will be shown after rebooting)
Copy all partitions onto original places
Realign partitions
Fixed active partition
Expand/Shrink partition to whole disk
Fixed active partition
Mode description
All partitions will be copied to their original places. If the drive's geometry is detected correctly, and there is no non-standard loader, it makes the exact sector-by-sector copy of the original object.
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HDD Copy Method	
Raw disk copy	**R-Drive Image** writes sector-by-sector the data from the original drive or its image to the target one making an exact copy of the original disk regardless of its partitioning method. Can be used if other methods create a non-bootable disk due to incorrect detection of drive's geometry or non-standard loader. Drawback: partition sizes cannot be changed.
Copy all partitions onto original places	**R-Drive Image** copies all partitions to their original places. If **R-Drive Image** detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
Realign partitions	**R-Drive Image** will copy the partitions on the disk with a 512KB alignment. This is very useful for SSD and advanced-formatted disks. If there are empty (non-used) spaces between partitions, those spaces will be removed taking into account the alignment.
Expand/Shrink partition to whole disk	If there are empty (not-used) places between the partitions or they occupy less or more space than the target drive, **R-Drive Image** proportionally expands/shrinks them to occupy the entire target drive. Otherwise it is similar to Copy all partitions onto original places.
Fixed active partition	**R-Drive Image** preserves the original offset/size of the active partition (in case the loader has links to it).

See **Support for Various Disk Partition Schemes and File Systems** for details.

When you restore data from an image of a system disk, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.

Disk Signature Collision Resolving

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Same signature for both disk	**R-Drive Image** will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a system disk for another computer or only the target disk will be used in yours.
Different signature on the target disk.	**R-Drive Image** will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the source disk.	**R-Drive Image** will change the disk signature on the source disk. Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from the source disk anymore.

9 Verify that the information on the Confirm operations panel is correct and press the N key

> R-Drive Image will start restoring the data from the image file to the selected destination

The Progress window will show the progress of the current operation and overall process. When the image is restored, the **Operation completed successfully** message will appear.

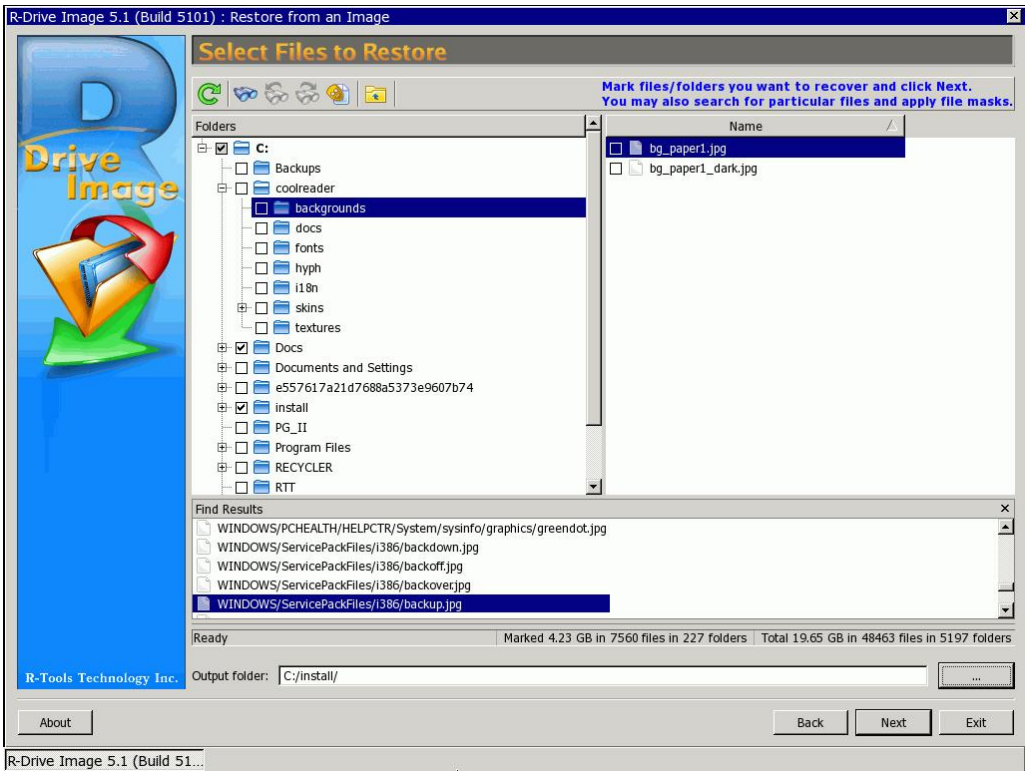
Restoring selected files and folders

(See **Support for Various Disk Partition Schemes and File Systems** for the list of supported file systems)

5 Select the object in the image file on the Image Object Selection pane where the files and folders reside, and c

6 Mark folders and files to restore on the Select Files to Restore panel and click the Next button

Select Files to Restore Panel



Buttons

Find
Click this button to find a particular file/folder.
R-Drive Image searches for files only among files specified by a **File Mask**.

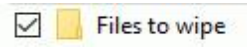
Find Next
Click this button to find the next object specified in the **Find** dialog window.

Find Previous
Click this button to find the previous object specified in the **Find** dialog window.

File Mask
Click this button to specify a file mask.

Up
Click this button to move highlighting one folder up.

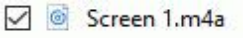
Folders panel. Richt-click a folder to reach its shortcut menu.



Marked folder (all child objects in this folder are marked)

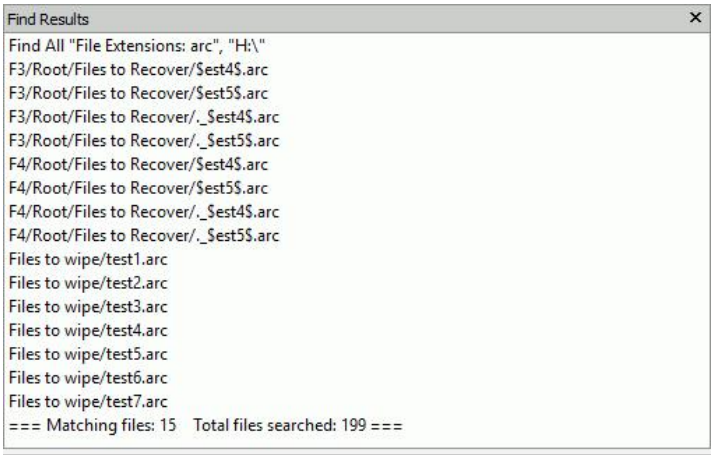
Partially marked folder (some child objects in this folder are marked)

Files panel:



File marked to restore

The **Find Results** panel.
Appears when file search has been performed



Log panel:

File search

You may use the advanced search capabilities of **R-Drive Image** to find necessary files. Click the **Find** button and specify the files to find on the **Find** dialog box.

Note that a **File Mask** may be applied.

You may also reach the **Find** dialog box by right-clicking a folder on the **Folders** pane and selecting an

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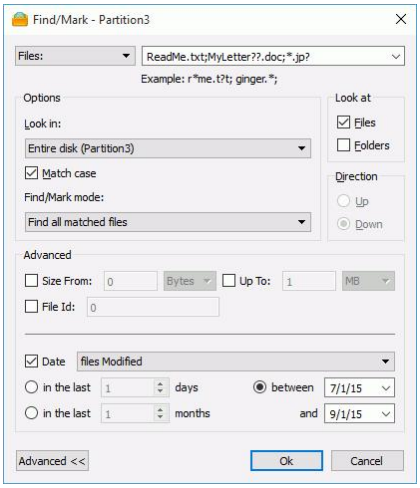
appropriate item in the shortcut menu.

Find/Mark *dialog box*



Find/Mark options

You may specify how to treat specified strings. Please note that **R-Drive Image** stores previously entered search strings.	
Files	If this option is selected, **R-Drive Image** treats specified strings as file names. Use ? for one unspecified character and * for an unlimited number of them to specify file masks.
File Extensions	If this option is selected, **R-Drive Image** treats specified strings as file extensions
Regular Expressions	If this option is selected, **R-Drive Image** treats specified strings as regular expressions
All Files	If this option is selected, **R-Drive Image** applies Advanced Options to all files.
Options	
Match case	If this check box is selected, **R-Drive Image** makes a case-sensitive search
Look in	Specifies where **R-Drive Image** searches for, and marks, files. It can look for them on the Entire disk, From current folder, In the Current folder and subfolders, and in the Current folder only. If From current folder is selected, you may also specify the Direction for the search from the current position in the current folder.
Find/Mark mode	Specifies what **R-Drive Image** does with the found files. It may: Find all matched files. **R-Drive Image** searches for all files that match the search criteria. The search results appear on the **Find Results** panel. Find first matched file. **R-Drive Image** stops at the first found file. Mark matched files. **R-Drive Image** marks all found files. Unmark matched files. **R-Drive Image** unmarks all found files. Please note, that when performing a new find and mark/unmark task, **R-Drive Image** does not takes into consideration the previous marked/unmarked state of files. For example, if you first mark all `doc` files, and then all `txt` files, all `doc` files remain marked, too. To unmark them, you should specify `doc` once again and select Unmark matched files.
Look at	
Files	If this check box is selected, **R-Drive Image** includes files into a search.

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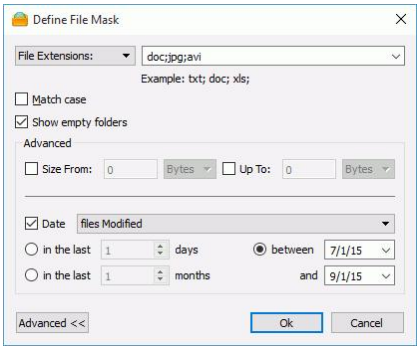
Folders	If this check box is selected, **R-Drive Image** includes folders into a search.
Direction	Specifies search direction from the current position. Available only if From current folder is selected in Look in.
Advanced Options	
Size from/up to	Specifies file size limits.
File Id	Specifies File Id that **R-Drive Image** assigns to a file.
Date	Specifies file date boundaries. Files may be Modified/Created/Last Accessed.

Use the **Find Next** or **Find Previous** buttons or shortcut menu commands to repeat the search.

You may use file masks to find files visually. Click the **File Mask** button and specify a file mask on the **Mask** dialog box. You may also use the shortcut menu to reach this dialog box.

Mask dialog box



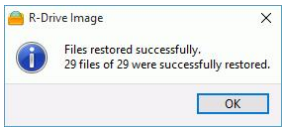
File mask options

You may specify options for All Files, File Extensions, Files, and Regular Expressions	
Match case	If this check box is selected, **R-Drive Image** makes a case-sensitive search.
Show empty folders	If this check box is selected, **R-Drive Image** will show folders with no files matching the mask.
Advanced Options	
Size from/up to	Specifies file size limits.
Date	Specifies file date boundaries. Files may be Modified/Created/Last Accessed.

7 Verify that the information on the Processing panel is correct and click the Start button

> R-Drive Image will start restoring the files from the image file to the selected destination.

When the image is restored, the **Files restored successfully** message will appear.



The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

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4.4 Create an Image

It is recommended that you print out this topic and have the hardcopy on hand while you are performing this action.

If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the list of supported hardware.

If you plan to use any external device, turn it on before starting the system.

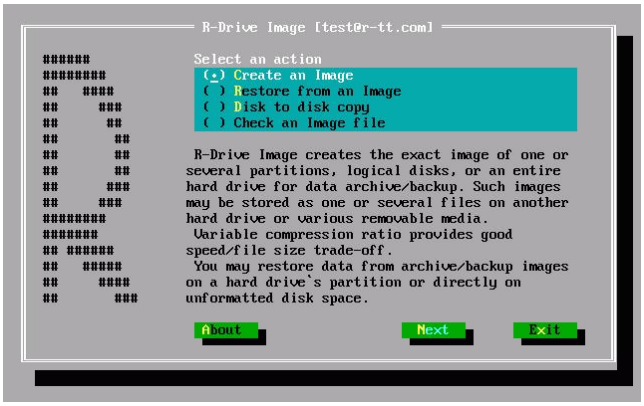
If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

1 **Restart your computer in the startup mode**

2 **Select Create an Image on the Action Selection panel and press the N key**

Use the arrow keys to switch between the options.

Action Selection Panel


R-Drive Image [test@r-tt.com]
Select an action
(•) Create an Image
( ) Restore from an Image
( ) Disk to disk copy
( ) Check an Image file
R-Drive Image creates the exact image of one or several partitions, logical disks, or an entire hard drive for data archive/backup. Such images may be stored as one or several files on another hard drive or various removable media.
Variable compression ratio provides good speed/file size trade-off.
You may restore data from archive/backup images on a hard drive's partition or directly on unformatted disk space.
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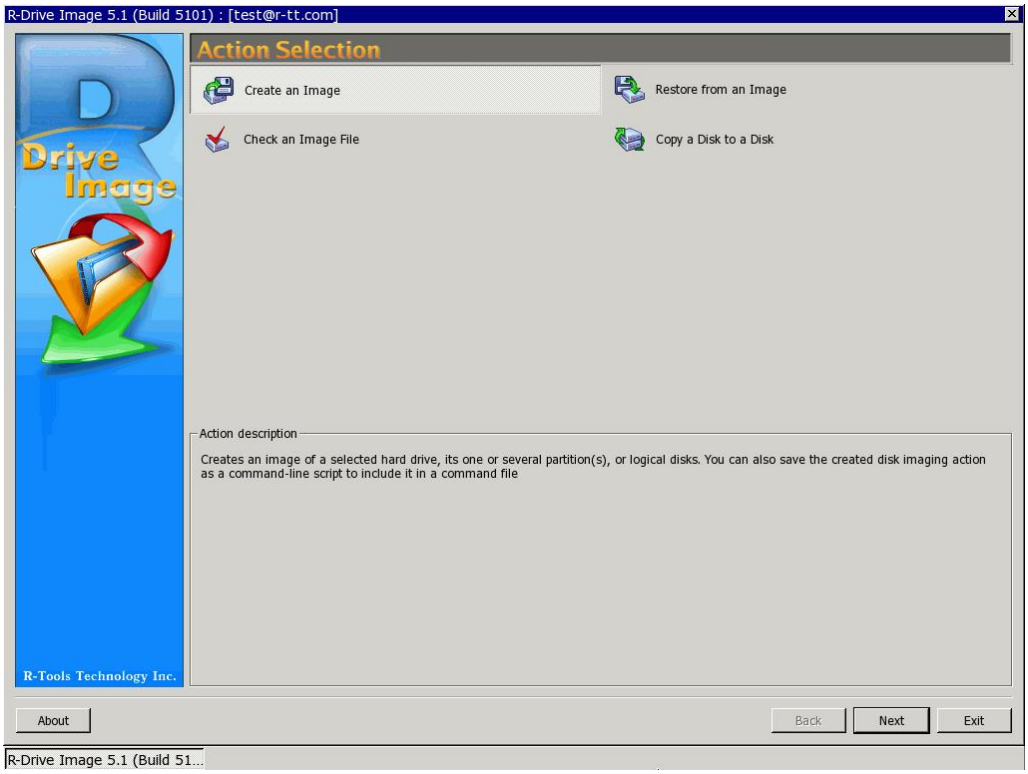
R-Drive Image 5.1 (Build 5101) : [test@r-tt.com]
Action Selection
Create an Image
Restore from an Image
Check an Image File
Copy a Disk to a Disk
Action description
Creates an image of a selected hard drive, its one or several partition(s), or logical disks. You can also save the created disk imaging action as a command-line script to include it in a command file
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R-Drive Image 5.1 (Build 51...

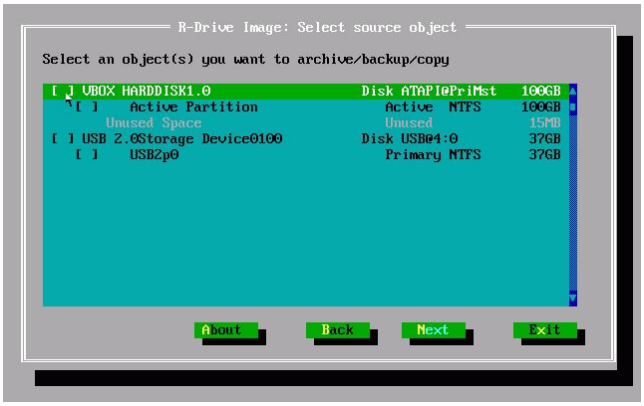
R-Drive Image will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **R-Drive Image: Select an object you want to archive/backup/copy** panel will show the configuration.

H	Hard drive
P	Primary partition
L	Logical disk
U	Unallocated space

3 Select an object you want to create an image on the Select source object panel and press the N key

Use the arrow keys to switch between the objects and the **SPACEBAR** to select the object.

Select Source Object Panel


R-Drive Image: Select source object
Select an object(s) you want to archive/backup/copy
[ ] VBOX HARDDISK1.0 Disk ATAPI@PriMst 100GB
[ ] Active Partition Active NTFS 100GB
Unused Space Unused 15MB
[ ] USB 2.0Storage Device0100 Disk USB@4:0 37GB
[ ] USB2p0 Primary NTFS 37GB
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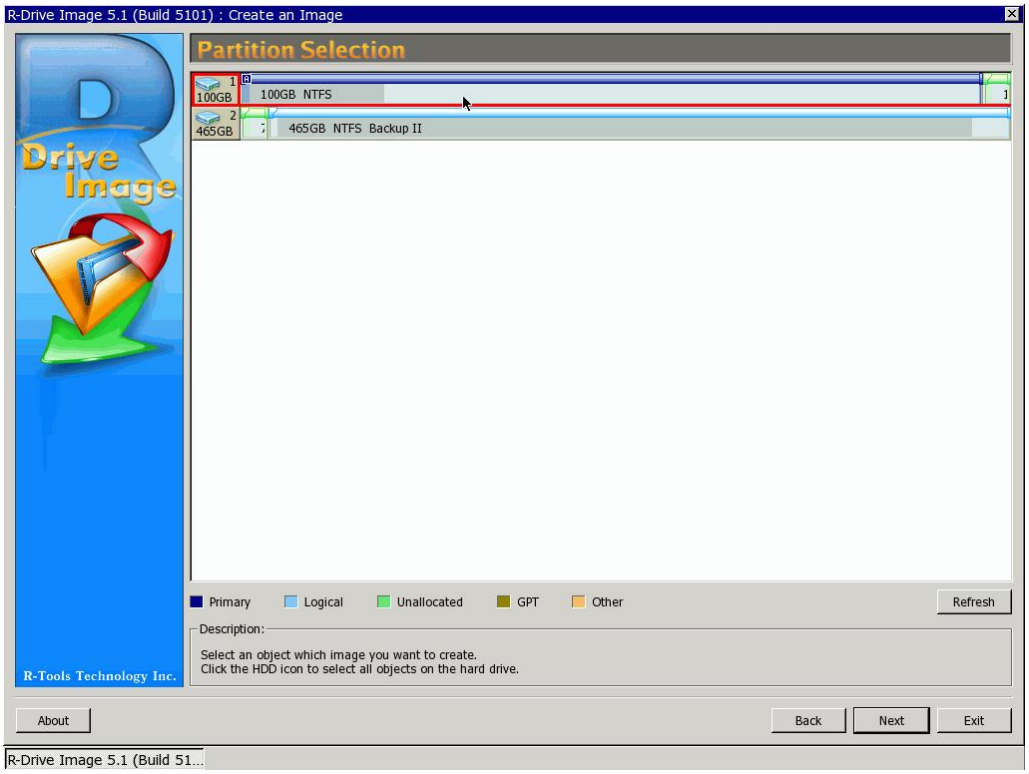
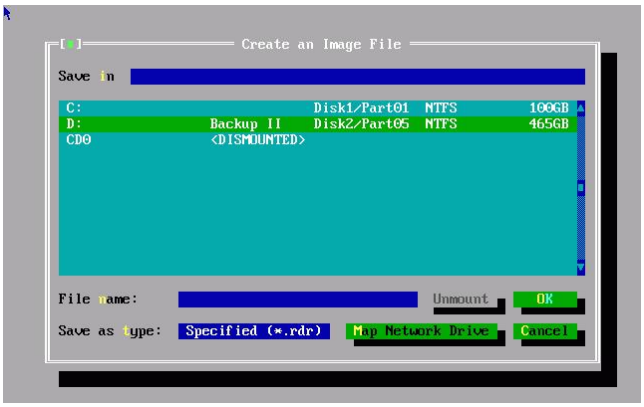
Partition Selection Panel



4 **Select the place on the Create an Image panel to which the image files will be written, specify the file name, and press the O key**

Create an Image File Panel



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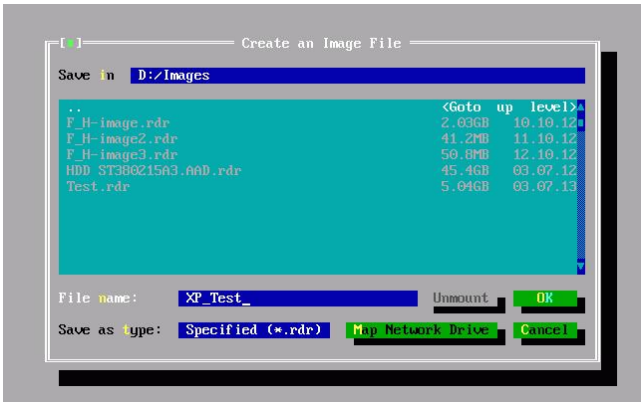
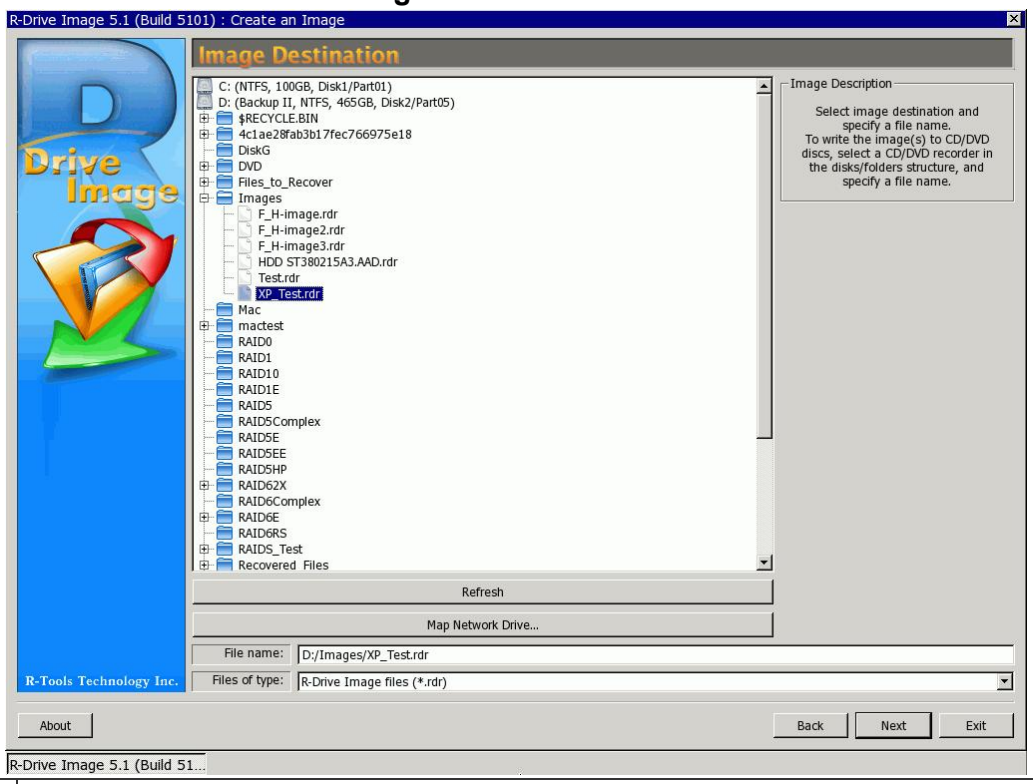


Image Destination Panel



R/O	Read-only disk. You cannot create images on such disks

Use the **Tab** key to switch between the control areas.

External USB drives with the NTFS file system: the startup version of **R-Drive Image** can save image files on such disks if they are properly disconnected in a Windows system using the **Safely Remove Hardware** icon in the system tray or while shutting Windows down.

You may also connect network drives.

5 Specify image options on the Image Options panel and click the Next button

You may specify image options on this panel.

Image Options Panel

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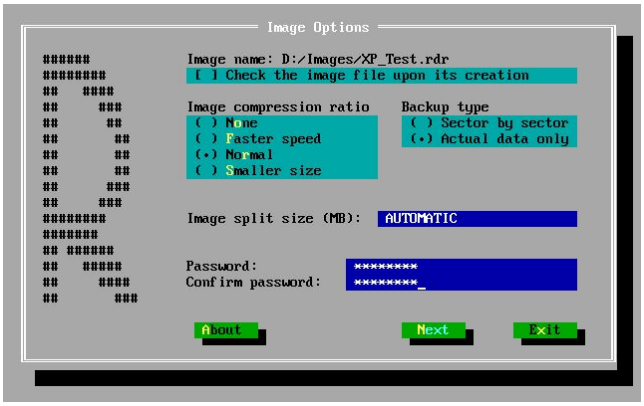

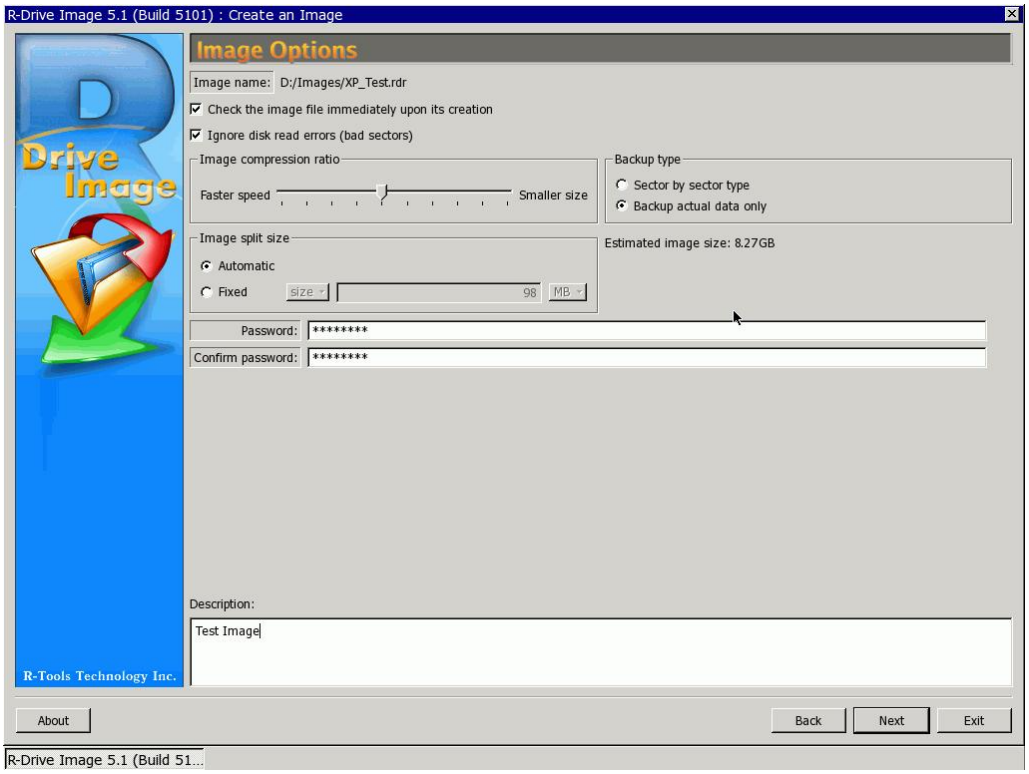

Image options

Options	
Image name:	Shows the file name for the image. You cannot change the file name on this panel.
Check the image file immediately upon its creation	Select this option if your want R-Drive Image to check the newly created file image for its consistency. This may be useful for storing image files with critical data. Please note that this operation requires additional time.
Image compression ratio	You may compress the data in the image to save space. Please note that the smaller size you select the more time will be spent to create the image file and vise versa.
Backup type	You may store in the image either the exact Sector by backup copy of the object or Backup useful information only, that is, you do not have to store empty space of the object in image files. See **Support for Various Disk Partition Schemes and**

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	File Systems for the list of supported file systems.
Estimated size	Shows the estimated size of the image file. An actual image size depends on how much empty space is on the selected partition and what file types are there.
Image split size	You may set this option to Automatic and let Windows decide how to split the image file. This mostly depends on the file system on the destination disk. You may also either explicitly specify the split size, or choose a preset for various devices with removable storage. Select Fixed size for that.
Password	You may protect your image file with a password. **Note:** This feature provides a relatively moderate protection against conventional unauthorized access.
Image description	You may attach a text description to the image for annotation. Maximum length of the description is 255 characters.

6 **Verify that the information on the Confirm operations panel is correct and click the N key**

> **R-Drive Image will start creating the image file**

The Progress window will show the progress of the current operation and overall process. If you selected a read-only disk as the target, you will see the **File is read-only. Press OK to retry**. message.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

4.5 Disk to Disk Copy

It is recommended that you print out this topic and have the hardcopy on hand while you are performing this action.

If there is a non-IDE disk controller in your system, or you plan to use network disks or external hardware devices, first check the list of supported hardware.

If you plan to use any external device, turn it on before starting the system.

If the motherboard in your computer supports the Serial ATA (SATA) devices, but IDE disks are also present, only the SATA devices should be set to the Enhanced Mode in BIOS.

1 **Restart your computer in the startup mode**

2 **Select Disk to disk copy on the Action Selection panel and press the N key**

R-Drive Image will start analyzing the computer disk configuration, the **Progress...** message showing the progress. Then the **R-Drive Image: Select an object you want to archive/backup/copy** panel will show the configuration.

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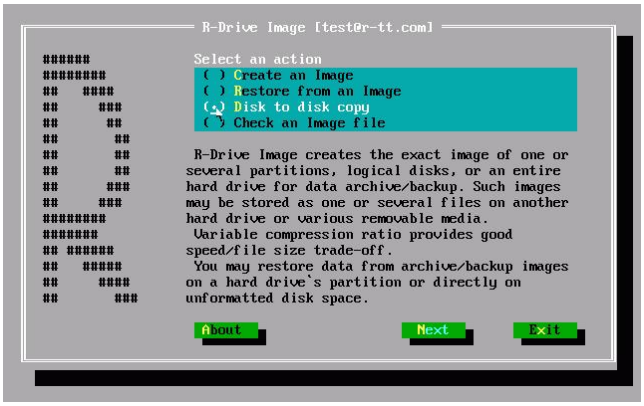
Action Selection Panel


R-Drive Image [test@r-tt.com]
Select an action
( ) Create an Image
( ) Restore from an Image
(•) Disk to disk copy
( ) Check an Image file
R-Drive Image creates the exact image of one or several partitions, logical disks, or an entire hard drive for data archive/backup. Such images may be stored as one or several files on another hard drive or various removable media.
Variable compression ratio provides good speed/file size trade-off.
You may restore data from archive/backup images on a hard drive's partition or directly on unformatted disk space.
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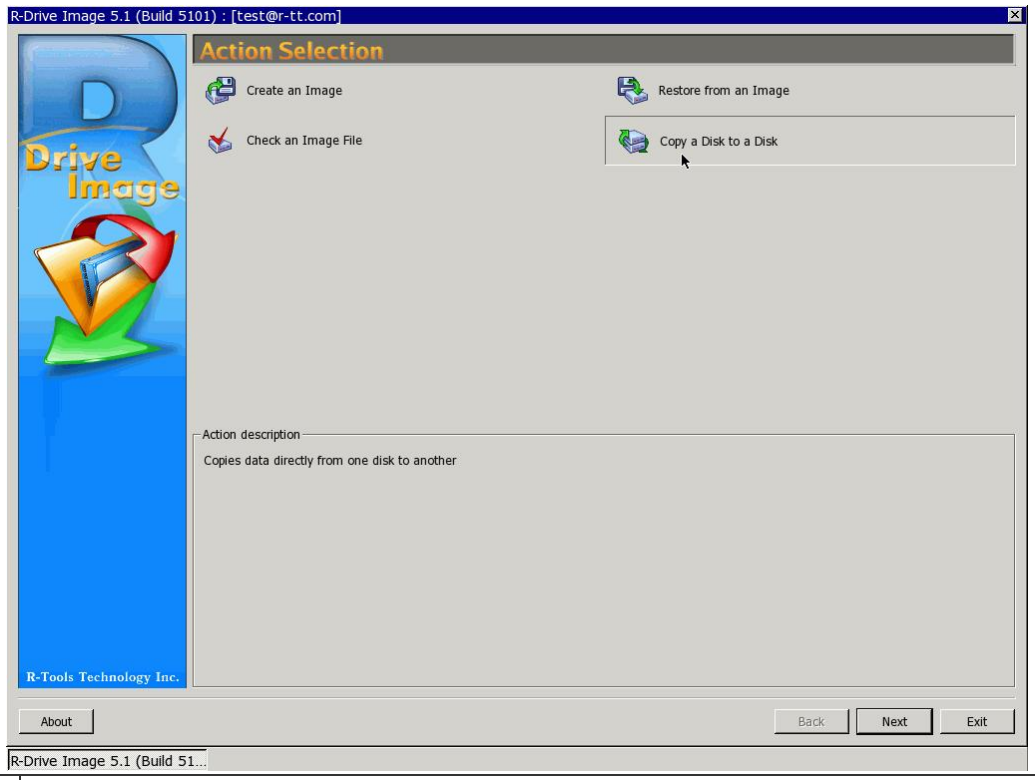

H	Hard drive
P	Primary partition
L	Logical disk
U	Unallocated space

Use the arrow keys to switch between the options.

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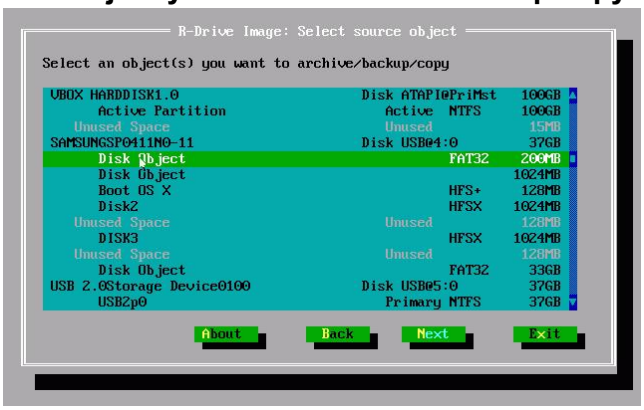
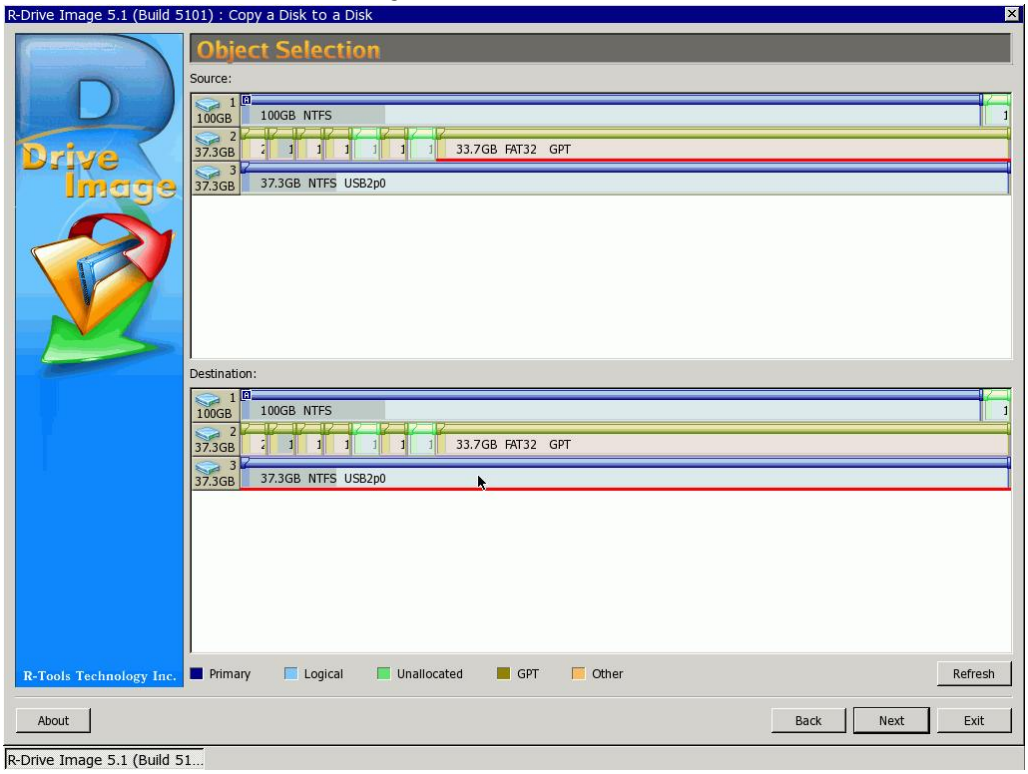
3 Select an object you want to copy on the **Select an object you want to archive/backup/copy** panel and press the N key

Select an object you want to archive/backup/copy Panel



Object Selection Panel



Use the arrow keys to switch between the objects.

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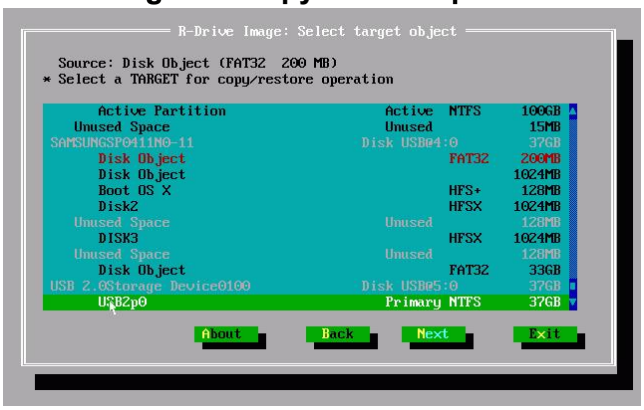
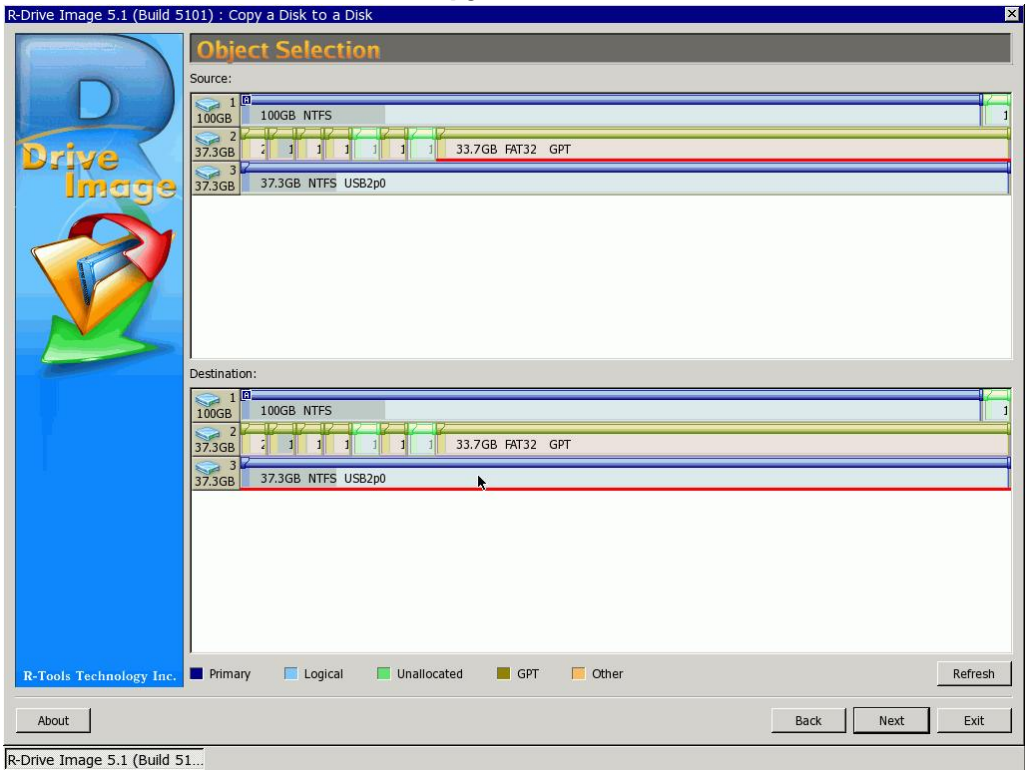
4 **Select the destination for the data on the Select a target for copy/restore operation panel and press the N key**

Select a target for copy/restore operation Panel



Restore/Copy Parameters Panel



Use the arrow keys to switch between the target objects.

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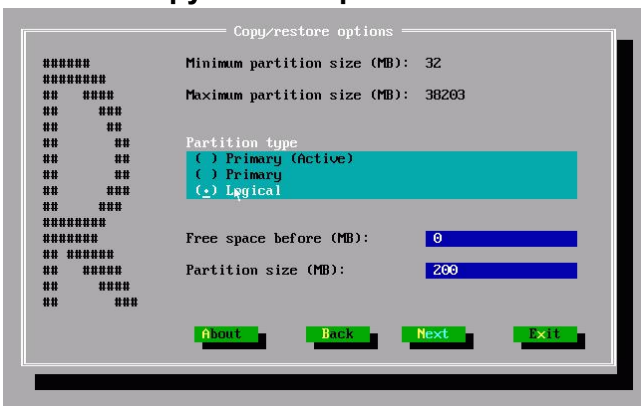
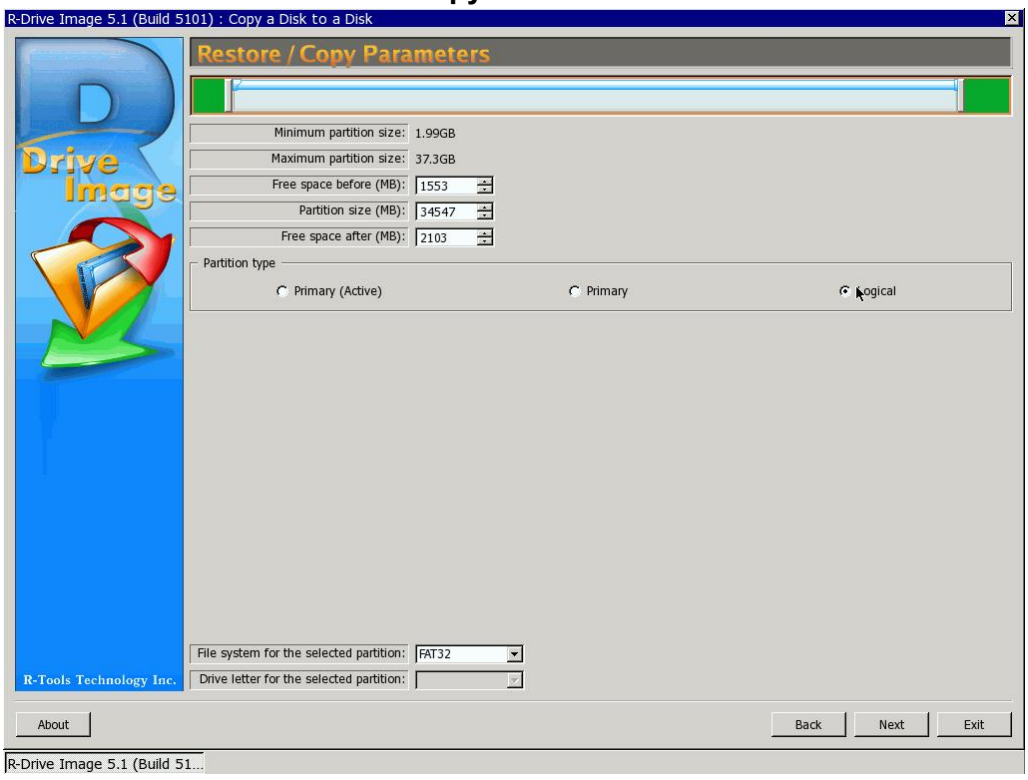
5 Specify restore parameters on the Copy/restore options panel and press the N key

Copy/restore options Panel



Restore/Copy Parameters Panel



For restoring/copying one or several partition(s):

Restore Options	
Free space before	You may specify the size of free space that will be left on the hard drive before the beginning of the partition.
Partition size	You may specify the size of the partition to be restored. Should be between the minimum and maximum partition size.
Partition type Primary(Active) Primary Logical	You may specify the type of the partition to be restored. Do not change this setting unless you have serious reasons to do so.

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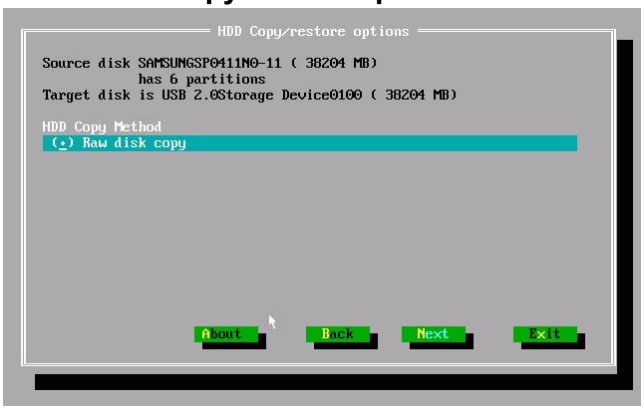
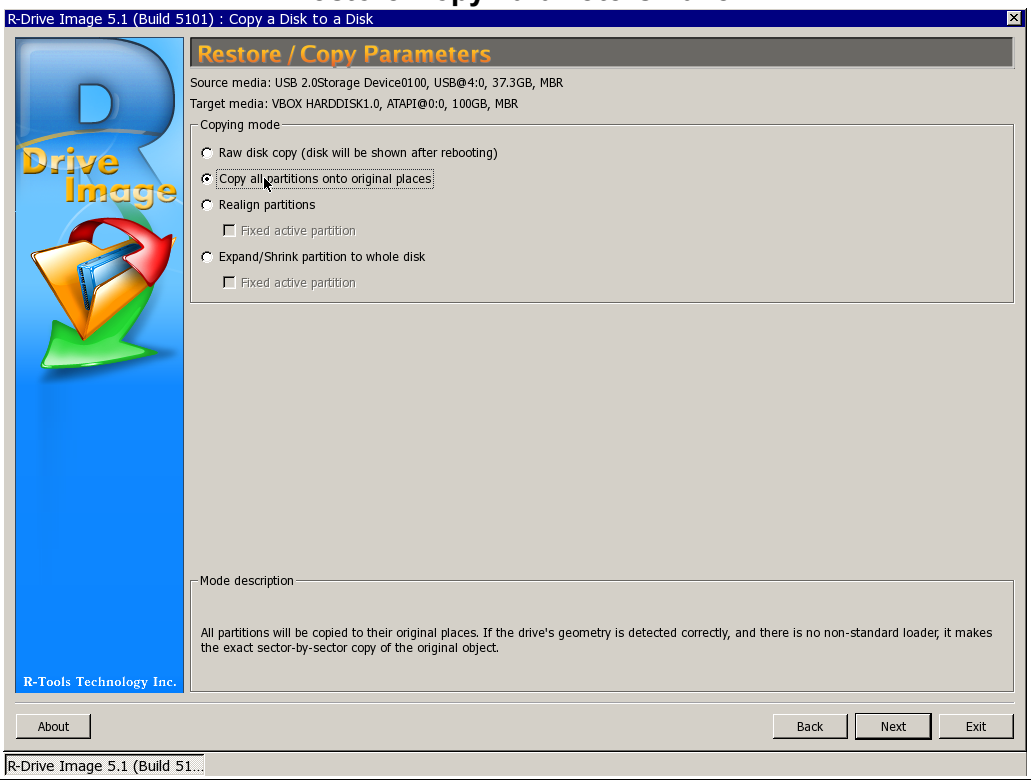
For restoring/copying an entire hard drive to another hard drive:

HDD Copy/restore options Panel



Restore/Copy Parameters Panel


R-Drive Image 5.1 (Build 5101) : Copy a Disk to a Disk
Restore / Copy Parameters
Source media: USB 2.0Storage Device0100, USB@4:0, 37.3GB, MBR
Target media: VBOX HARDDISK1.0, ATAPI@0:0, 100GB, MBR
Copying mode
Raw disk copy (disk will be shown after rebooting)
Copy all partitions onto original places
Realign partitions
Fixed active partition
Expand/Shrink partition to whole disk
Fixed active partition
Mode description
All partitions will be copied to their original places. If the drive's geometry is detected correctly, and there is no non-standard loader, it makes the exact sector-by-sector copy of the original object.
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R-Drive Image 5.1 (Build 51...

HDD Copy Method	
Raw disk copy	**R-Drive Image** writes sector-by-sector the data from the original drive or its image to the target one making an exact copy of the original disk regardless of its partitioning method. Can be used if other methods create a non-bootable disk due to incorrect detection of drive's geometry or non-standard loader. Drawback: partition sizes cannot be changed.
Copy all partitions onto original places	**R-Drive Image** copies all partitions to their original places. If **R-Drive Image** detects the drive's geometry correctly, and there is no non-standard loader, it makes the same result as during Raw disk copy.
Realign partitions	**R-Drive Image** will copy the partitions on the disk with a 512KB alignment. This

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	is very useful for SSD and advanced-formatted disks. If there are empty (non-used) spaces between partitions, those spaces will be removed taking into account the alignment.
Expand/Shrink partition to whole disk	If there are empty (not-used) places between the partitions or they occupy less or more space than the target drive, **R-Drive Image** proportionally expands/shrinks them to occupy the entire target drive. Otherwise it is similar to Copy all partitions onto original places.
Fixed active partition	**R-Drive Image** preserves the original offset/size of the active partition (in case the loader has links to it).

See **Support for Various Disk Partition Schemes and File Systems** for details.

When you copy a system disk, a disk signature collision may occur. In this case, the **Disk Signature Collision** panel will appear. You may specify the way to resolve this collision on this panel.

Disk Signature Collision Resolving	
Same signature for both disk	**R-Drive Image** will create an identical copy of the source disk with the same signature. To avoid disk signature collision, you'll have to disconnect one of the disks and restart the computer, if necessary. Use this mode if you clone a system disk for another computer or only the target disk will be used in yours.
Different signature on the target disk.	**R-Drive Image** will write another disk signature to the target disk. Don't use this mode if you clone a system disk, Windows won't start from it. To get access to the target disk after cloning, you'll have to restart the computer or re-connect it if it's an external USB disk.
Change the disk signature on the source disk.	**R-Drive Image** will change the disk signature on the source disk. Use this mode if you want to start Windows from the target disk, but be warned: the computer won't start from the source disk anymore.

6 Verify that the information on the Confirm operations panel is correct and click the N key

> R-Drive Image will start copying the data from the source disk to the selected destination

The Progress window will show the progress of the current operation and overall process. When the data is copied, the **Operation completed successfully** message will appear.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

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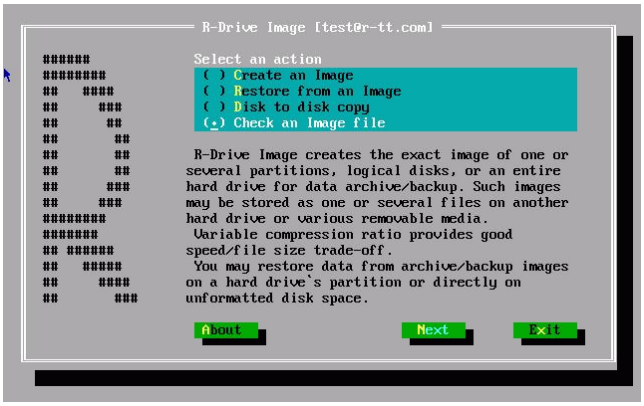
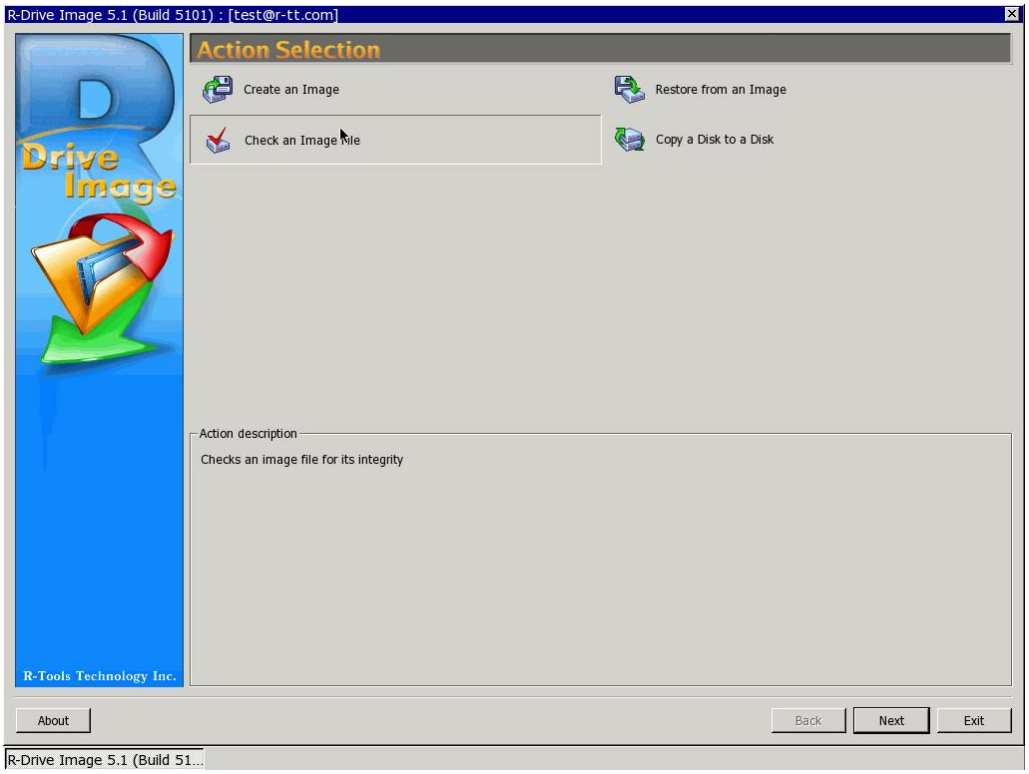
4.6 Check an Image File

To check an image file:

1 Click **Check an Image File** on the **Action Selection** panel

Action Selection Panel


R-Drive Image [test@r-tt.com]
Select an action
( ) Create an Image
( ) Restore from an Image
( ) Disk to disk copy
(•) Check an Image file
R-Drive Image creates the exact image of one or several partitions, logical disks, or an entire hard drive for data archive/backup. Such images may be stored as one or several files on another hard drive or various removable media.
Variable compression ratio provides good speed/file size trade-off.
You may restore data from archive/backup images on a hard drive's partition or directly on unformatted disk space.
About
Next
Exit



2 Select the file with the image on the **Image File Selection** panel and click the Next button

Open an Image File Panel

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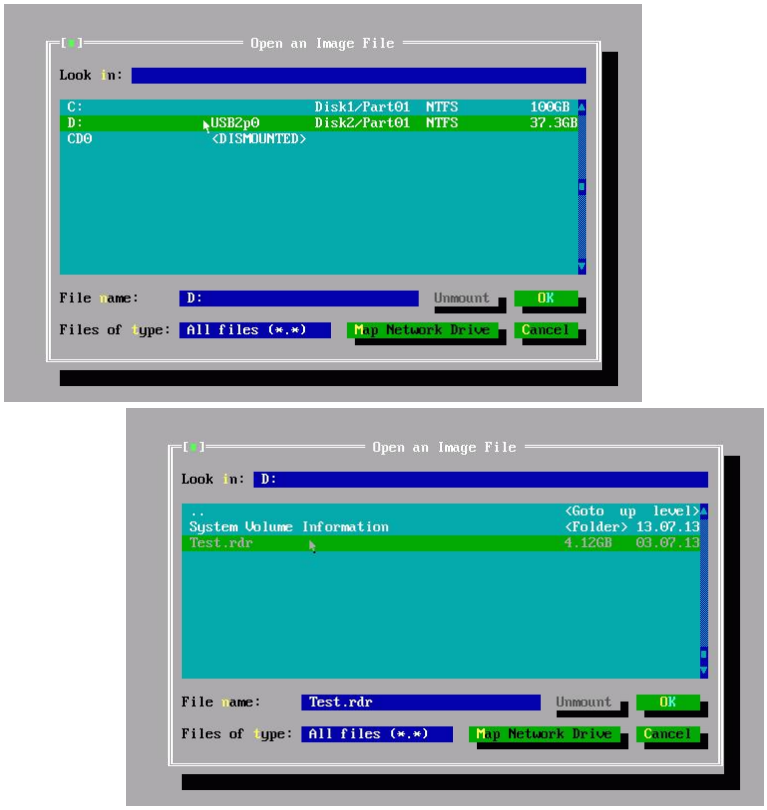
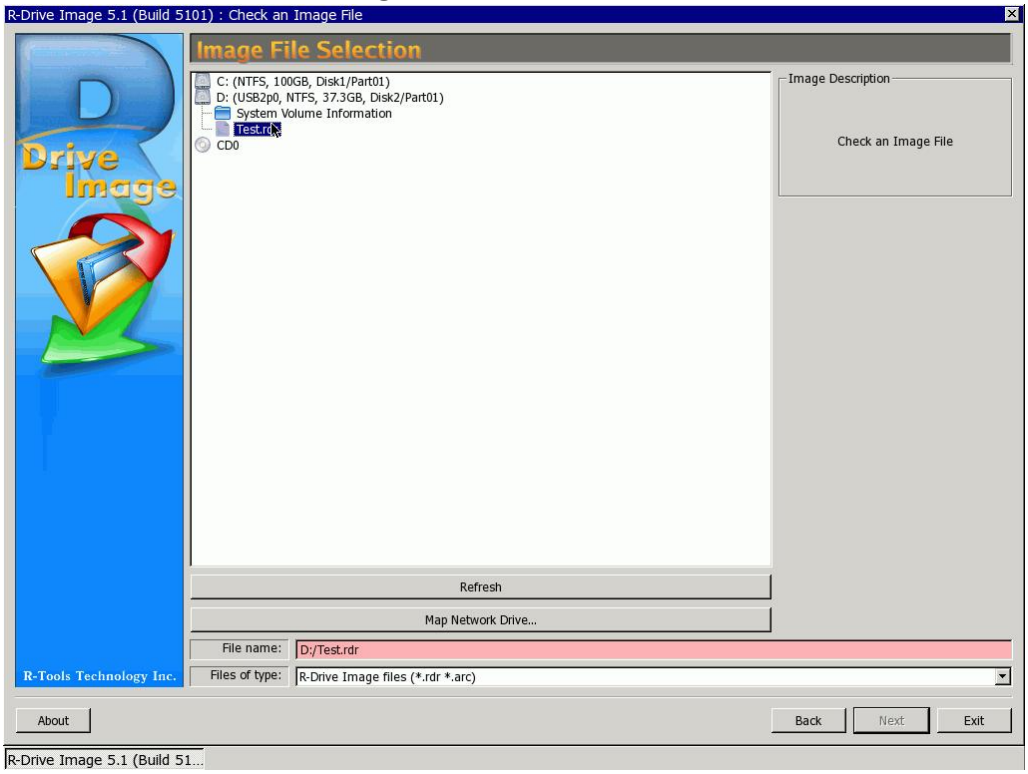


Image File Selection Panel



You may also connect network drives.

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3 **Verify that the information on the Processing panel is correct and click the Start button**

> **R-Drive Image will start checking the data in the image file.**

The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

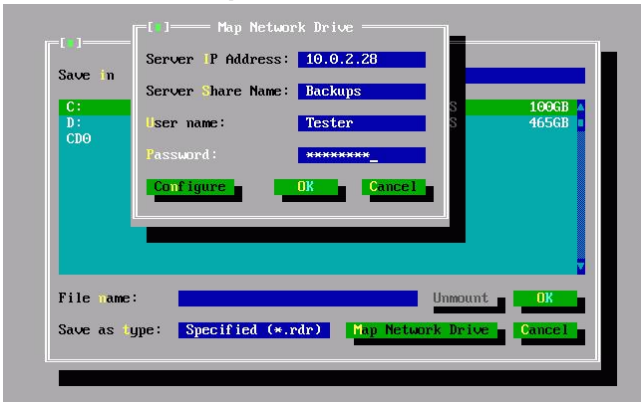
4.7 Network Drives

If your computer is on a local network, you may write image files or restore images to / from network drives. To do so, you need to map such a network drive.

To map a network drive,

1 **Click the Map Network Drive button and enter required information**

Map Network Drive



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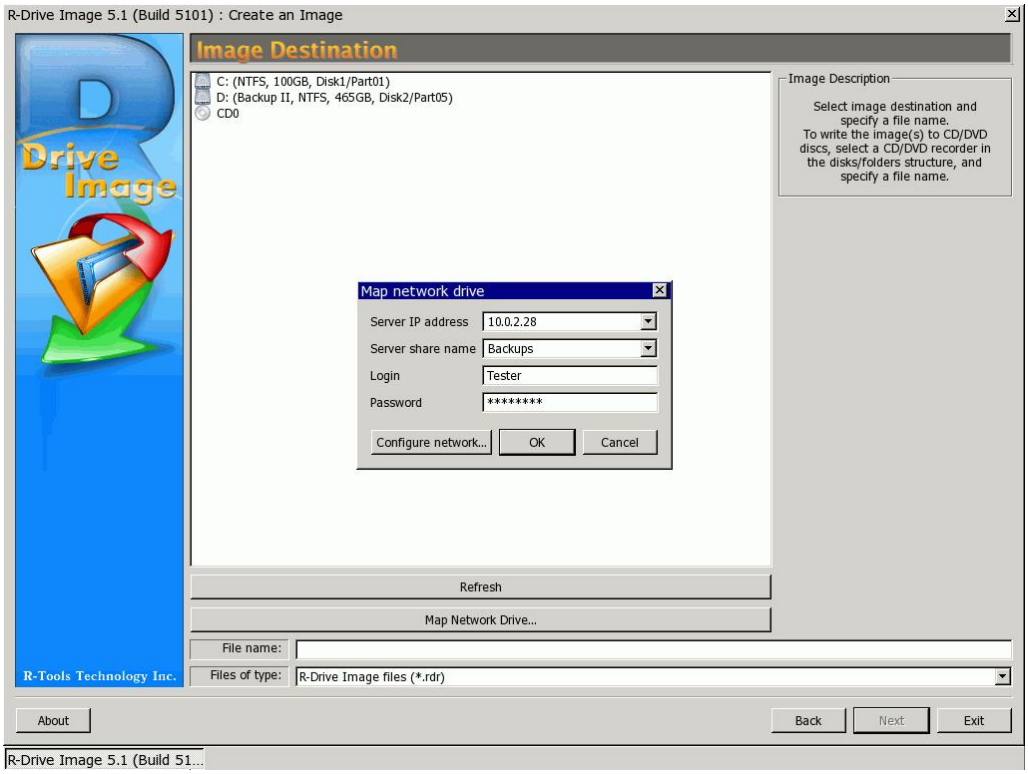


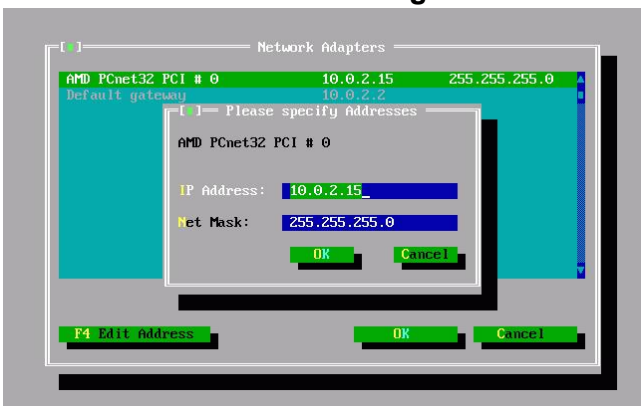
For the network drive' path `//SERVER/Backups`,

Server IP address: The IP address of the `SERVER` computer

Server share name: `Backups`.

Sometimes it may be necessary to manually configure network settings, if, for example, there is no DHCP server on the network. Click the **Configure network** button, select the required field, click the **Edit Address** button, and enter the required information.

Network Settings



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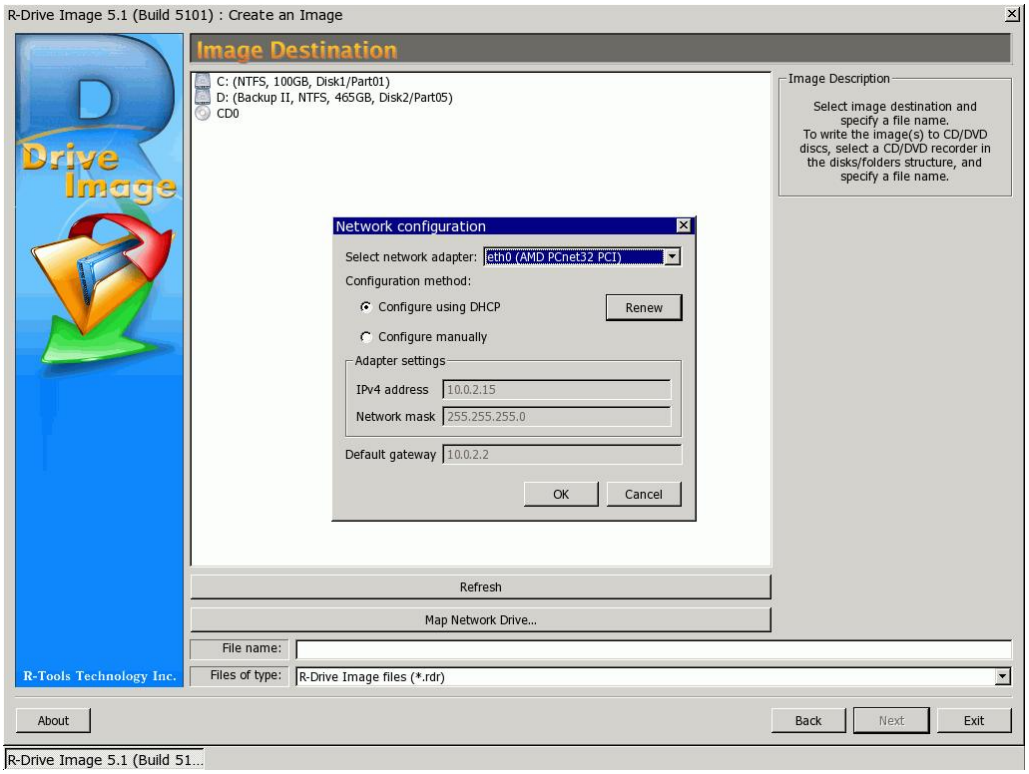

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

V Scheduled Actions, Command Line Operations, and Scripting

This chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line or command files.

- **Scheduler and Unattended Actions**
- **Scripting and Command Line Operations**
- **Backup sets**

The **Disk Actions** chapter explains disk actions such as:

- **Create an Image** of a partition, logical disk, or entire hard drive
- **Restore Data from an Image**
- **Copy Disk to Disk** to make an exact copy of one disk on another
- **Connect an Image as a Virtual Logical Disk** **(read-only)**
- **Disconnect Virtual Logical Disks**
- **Check an Image File** to check an existing image file

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The **RAIDs, and Various Disk and Volume Managers** chapter explains how to perform disk actions with various compound volumes such as:

- **Windows Software RAIDs, Spanned, and Other Volumes**
- **Windows Storage Spaces**
- **Mac RAIDs**
- **Linux Logical Volume Manager Volumes**

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- **Create Startup Disk**
- **Restoring Data to a System or Other Locked Disk**
- **Create an Image Using the Startup Disks**
- **Disk to Disk Copy Using the Startup Disks**

The **Technical Information** chapter gives technical information on

- **Creating consistent point-in-time backups**
- **Support for Various Disk Partition Schemes and File Systems**
- **Supported CD and DVD Recorders**
- **List of Hardware Devices Supported in the Startup Mode**

The **R-Drive Image OEM kit** chapter explains how computer system integrators can create system recovery disks for their systems

- **Create a Master Image**
- **Create Startup Media**

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

5.1 Scheduler and Unattended Actions

You may schedule some disk actions at a certain time or event, and **R-Drive Image** will perform them unattended. You may also execute a task manually. Right-click the task and select **Execute Now** in the context menu.

- **Create a task**
- **Edit a task**
- **Delete a task**
- **Run a Task Manually**

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

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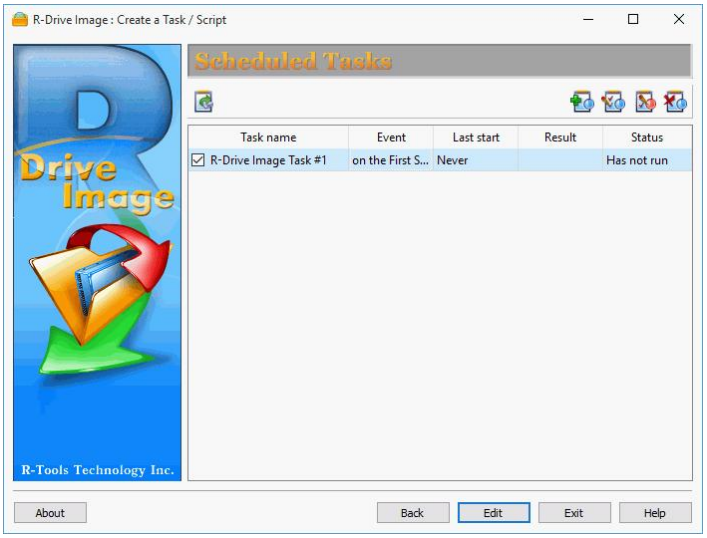
5.1.1 Create a Task

Generally, you may set a scheduled task the same way you set a regular action for creating an image of a disk, partition, or an entire hard drive.

To create a new task:

1 **Click Scheduler/Create Script on the Action Selection panel**

The **Scheduled Tasks** panel will appear.

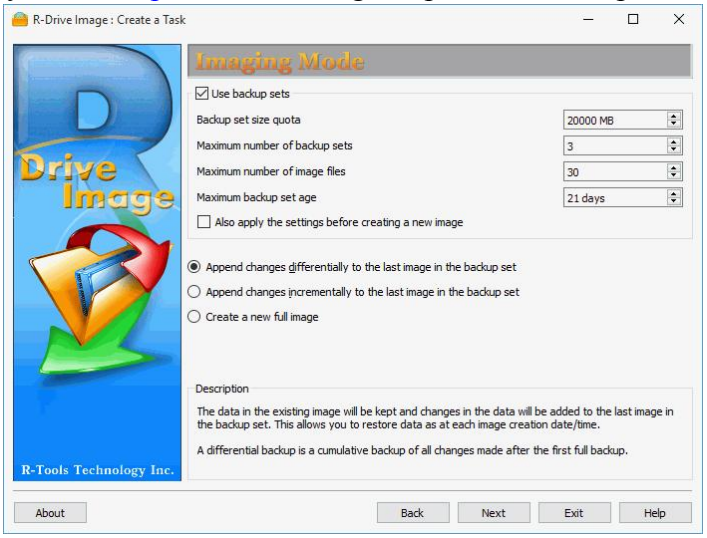


2 **Click the Create a Task button on the Scheduled Tasks panel**

3 **Select the objects you want to backup on the Partition Selection panel, image destination on the Image Destination panel, imaging mode on the Imaging Mode panel, image options on the Image Options panel, and backup options on the Backup Options panel.**

Go to the **Create an Image** topic for more details.

Please note that you may use backup sets for creating complex data backup tasks and maintaining data files.


R-Drive Image : Create a Task
Imaging Mode
Use backup sets
Backup set size quota
20000 MB
Maximum number of backup sets
3
Maximum number of image files
30
Maximum backup set age
21 days
Also apply the settings before creating a new image
Append changes differentially to the last image in the backup set
Append changes incrementally to the last image in the backup set
Create a new full image
Description
The data in the existing image will be kept and changes in the data will be added to the last image in the backup set. This allows you to restore data as at each image creation date/time.
A differential backup is a cumulative backup of all changes made after the first full backup.
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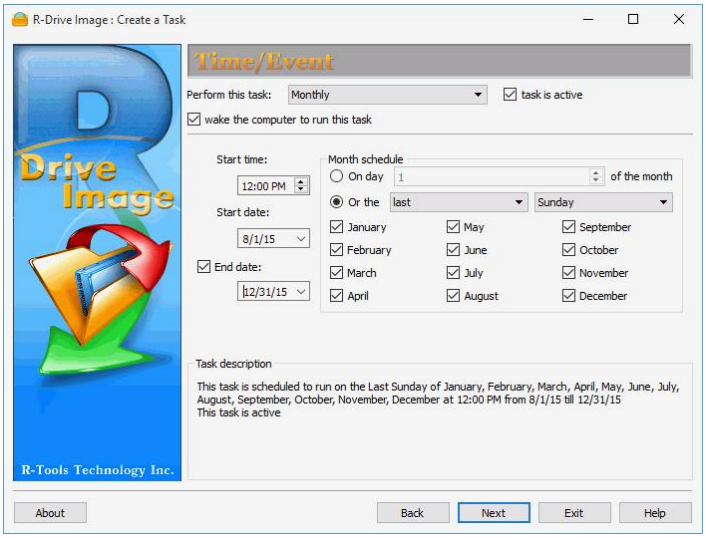
4 Specify the time or event at which the task should start on the Time/Event panel and click the Next button



You may specify time/event options on this panel.

Time/event options

task is active	If this options is not selected, the task will not start at its scheduled time/event
Perform this task:	
Daily	The task will start repeatedly on a daily time interval
Start time:	Time at which the task will start
Start date:	Date from which the task will start
Run this task every:	Time interval in days in which the task will regularly start
End date: (optional)	Date from which the task will not start anymore
Weekly	The task will start repeatedly on a weekly time interval
Start time:	Time at which the task will start
Start date:	Date from which the task will start
Run this task every:	Time interval in weeks in which the task will regularly start
On days:	Days of the week on which the task will start
End date: (optional)	Date from which the task will not start anymore
Monthly	The task will start repeatedly on a monthly time interval
Start time:	Time at which the task will start
Start date:	Date from which the task will start
Month schedule	
On day... of month	Day of the month on which the task will start
Or...	Weekdays in the month on which the task will start
Months	Months when the task will start
Once	The task will start once
Start time:	Time at which the task will start
Start date:	Date from which the task will start
At system startup	The task will start at every system startup

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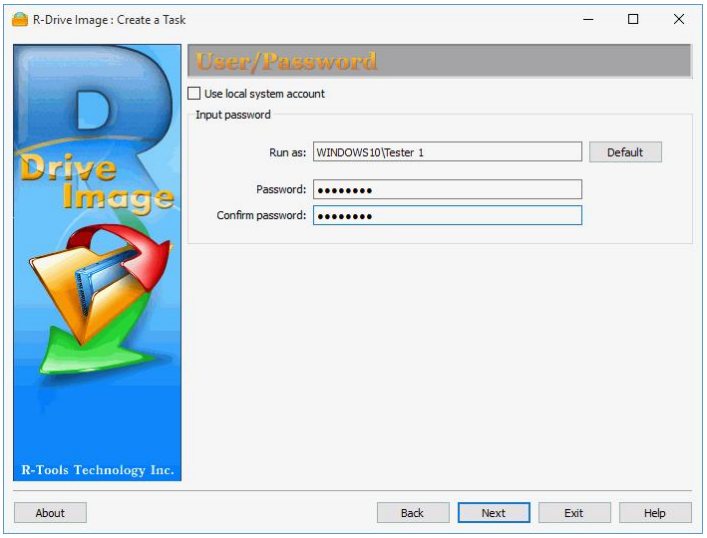
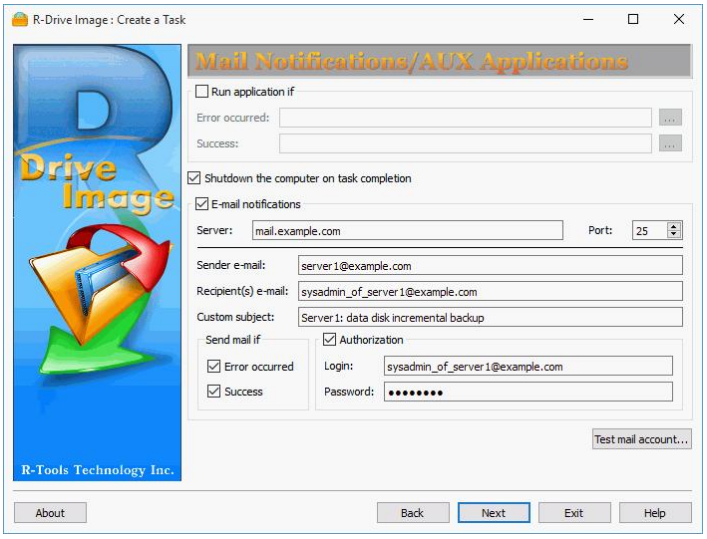
At user logon	The task will start every time a user will log on
wake the computer to run this task	If this checkbox is selected, your computer will automatically start up to perform this task

5 Specify a user name and password of a user from the Administrators user group on the User/Password panel and click the Next button

Click the **Default** button to make **R-Drive Image** to run as your default user.



6 Specify mail notification options (optional) and applications you want to run when the task will end successfully or failed (optional) on the Mail Notification/Aux Applications panel and click the Next button



These options are not mandatory and you may leave this panel empty.

More information...

Applications

You may specify the applications of the `*.com`, `*.exe`, and `*.pif` types, and their parameters delimited by a space.

Mail Notification

If a personal firewall is installed on your computer, you should allow the `r-driveimagecl.exe`

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application to get access to the e-mail server.

Shutdown the computer on task completion

If this checkbox is selected, **R-Drive Image** will shut your computer down when completed the task.

Test mail account

Click this button to test whether you entered the correct mail settings.

7 Verify that the information on the Processing panel is correct and click the Save button

> A new task will appear on the Scheduled Tasks panel

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

5.1.2 Edit a Task

You may edit a scheduled task.

To rename a task

1 Click Scheduler/Create Script on the Action Selection panel

The **Scheduled Tasks** panel will appear.

2 Right-click the task which you want to rename on the Scheduled Tasks panel

3 Select in the context menu Rename and enter a new task name

Note: You may also use a keyboard shortcut **F2** to rename a task

To edit the time or event at which a scheduled task should start:

1 Click Scheduler/Create Script on the Action Selection panel

The **Scheduled Tasks** panel will appear.

2 Select a task which event you want to edit on the Scheduled Tasks panel and click the Edit an Event button

The **Time/Event** panel will appear.

Note: You may also right-click the task and select **Edit an event** in the context menu.

3 Edit the time or event at which the task should start on the Time/Event panel and click the Next button

Go to the Create a Task topic for details

4 Click the Next button several times until you go to the Processing panel

5 Verify that the information on the Processing panel is correct and click the Save button

> The task will appear on the Scheduled Tasks panel with the new starting Time/Event

To edit an entire scheduled task:

1 Click Scheduler/Create Script on the Action Selection panel

The **Scheduled Tasks** panel will appear.

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2 **Select a task which you want to edit on the Scheduled Tasks panel and click the Edit button**

Note: You may also right-click the task and select **Edit a task** in the context menu.

3 **Edit the objects you want to backup on the Partition Selection panel, image destination on the Image Destination panel, imaging mode on the Imaging Mode panel, image options on the Image Options panel, and backup options on the Backup Options panel.**

Go to the Create an Image topic for more details.

4 **Edit the time or event at which the task should start on the Time/Event panel, the user name and password of a user from the Administrators user group on the User/Password panel, mail notification options (optional) and applications you want to run when the task will end successfully or failed (optional) on the Mail Notification/Aux Applications panel, and click the Next button**

Go to the Create a Task topic for more details.

5 **Verify that the information on the Processing panel is correct and click the Save button**

> **The task will appear on the Scheduled Tasks panel with the new options**

The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

5.1.3 Delete a Task

You may delete a scheduled task that you do not need any more.

To delete a scheduled task:

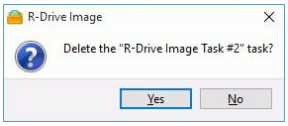
1 **Click Scheduler/Create Script on the Action Selection panel**

The **Scheduled Tasks** panel will appear.

2 **Select a task you want to delete on the Scheduled Tasks panel and click the Delete a Task button** or

Right-click the task and select **Delete a Task** in the context menu.

The **Delete selected task** message will appear.



3 **Click the OK button**

> **The task will disappear on the Scheduled Tasks panel**

The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.
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5.1.4 Run a Task Manually

You may run a task manually at any time.

To run a scheduled task manually:

1 **Click Scheduler/Create Script on the Action Selection panel**
The **Scheduled Tasks** panel will appear.

2 **Right-click a task you want to run and select Execute now on the context menu.**

You may also create a script from a task and run it manually.

5.2 Scripting and Command Line Operations

You may create scripts for frequently repeated or unattended disk actions and execute them from a command line or file. The same script commands may be executed directly from a command line.

Currently, **R-Drive Image** supports scripts for **creating a new image file**, **appending data to an existing one**, **restoring data from an image**, **check an image**, and **connect/disconnect images as virtual logical disk**.

To create a script

- **Creating a script from R-Drive Image**
- **Creating a script manually**

To execute a script:

1 **Type in the command line:**

```
r-driveimagecl [/switches] cmd="<ScriptName>.rdi"
```

where `<ScriptName>` is the script name and its path, if necessary,
and press the Enter key

Note: if `ScriptName` contains no spaces, double quotes (") may be omitted. No characters in `ScriptName` should be escaped.

Incompatibilities with ver.3.x

Script name should be passed using the `cmd` key.	
Ver. 3.x	`r-driveimagecl [/switches] <ScriptName>.rdi`
Ver. 4.x	`r-driveimagecl [/switches] cmd="<ScriptName>.rdi"`

Switch	Description
a	A non-interactive mode. **R-Drive Image** will not ask the user any questions. If it cannot perform the action, it will generate an error.
d	A debug mode. **R-Drive Image** will display all the information as it was performing the action, but will not perform the actual action.
f	If an error occurs, **R-Drive Image** will not exit the script and continue perform it from the following command. Inapplicable to actions started from the command line
i	**Not functioning since version 4.7!** The `s` and `d` parameters will use disk indexes rather than disk numbers. Disk indexes are disk serial numbers and can be seen either on the **R-Drive Image Partition Selection** panel or

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	Windows Disk Management.
o	If a file with a specified filename exists, **R-Drive Image** will overwrite it quietly.
off	will shut down the computer when it finishes the command.

Switches set in the command lines also is used as default values for parameters in scripts.

> **R-Drive Image will start executing the script showing the operation parameters and progress.**

When **R-Drive Image** completes the operation, the `Commit OK` message will appear in the command prompt.

You may include this command to a command file and automatically run such command file either manually or using any scheduling software for unattended disk actions.

To perform an action from the command line:

1 **Type in the command line:**

`R-DriveImage [/switches] command <params>`

to start **R-Drive Image** application

or

`r-driveimagecl [/switches] command <params>`

to start **R-Drive Image** console application

and press the Enter key.

> **R-Drive Image will start executing the command showing the action's progress.**

When **R-Drive Image** completes the action, the `Commit OK` message will appear in the command prompt.

Note: the `/f` switch is not applicable to the actions performed from the command prompt.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

5.2.1 Create a Script from R-Drive Image

You may create scripts directly from **R-Drive Image** the same way you set a regular action for creating an image of a disk, partition, or an entire hard drive.

To create a script from a disk action

1 **Click Create an Image on the Action Selection panel and specify all the options and parameters as it is described on the Create an Image topic.**

2 **Click the Script to Clipboard button on the Processing panel and paste the script to any text-processing utility**

3 **Save the script in a file**

The default extension for **R-Drive Image** scripts is `.rdi`. Go to the Scripting and Command Line Operation topic to learn how to use scripts

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To create a script from an existing task

1 **Click Scheduler/Create Script on the Action Selection panel**

The **Scheduled Tasks** panel will appear.

2 **Right-click the task the Scheduled Tasks panel**

3 **Select Save as Script in the shortcut menu and specify the name of the script**

> **R-Drive Image will save the script in the specified file**

The default extension for **R-Drive Image** scripts is `.rdi`. Go to the Scripting and Command Line Operation topic to learn how to use scripts

To create a new script from the Scheduler

1 **Click Scheduler/Create Script on the Action Selection panel**

The **Scheduled Tasks** panel will appear.

2 **Click the Create a Script button on the Scheduled Tasks panel**

3 **Select the objects you want to backup on the Partition Selection panel, image destination on the Image Destination panel, imaging mode on the Imaging Mode panel, image options on the Image Options panel, and backup options on the Backup Options panel.**

Go to the Create an Image topic for more details.

Please note that you may use backup sets for creating complex data backup tasks and maintaining data files.

4 **Specify mail notification options (optional) and applications you want to run when the task will end successfully or failed (optional) on the Mail Notification/Aux Applications panel and click the Next button**

These options are not mandatory and you may leave this panel empty.

More information...

Applications

You may specify the applications of the `*.com`, `*.exe`, and `*.pif` types, and their parameters delimited by a space.

Mail Notification

If a personal firewall is installed on your computer, you should allow the `r-driveimagecl.exe` application to get access to the e-mail server.

Shutdown the computer on task completion

If this checkbox is selected, **R-Drive Image** will shut your computer down when completed the task.

Test mail account

Click this button to test whether you entered the correct mail settings.

5 **Verify that the information on the Processing panel is correct and click the Save button**

You may also click the **Script to Clipboard** button to copy this script into the Clipboard and paste the script to any text-processing utility.

> **R-Drive Image will save the script in the specified file**

The default extension for **R-Drive Image** scripts is `.rdi`. Go to the Scripting and Command Line Operation topic to learn how to use scripts

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To create a script from a scheduled task

1 **Click Scheduler/Create Script on the Action Selection panel**
The **Scheduled Tasks** panel will appear.

2 **Right-click the task from which you want to create a script on the Scheduled Tasks panel**

3 **Select in the context menu either Save as script to save the script in a file or Script to Clipboard (Ctrl +C) to copy and paste the script to any text-processing utility.**

The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** and **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

5.2.2 Create a Script Manually

R-Drive Image has a very powerful and versatile script language that enables you to create scripts for all your needs.
A script consists of commands and their parameters. All commands, parameter, and their values are case-sensitive.

Incompatibilities with ver.3.x

	Ver. 3.x	Ver. 4.x
File names with " Escaping of the " character has been changed	""	"
File names with & Escaping of the & character has been changed	&	&
Partition list Several partitions should be set in one list	-s="part1" -s="part2" -s="part3"	-s="part1 part2 part3"

General:
The default extension for **R-Drive Image** script files is `.rdi`.
Parameter values may be inclosed in single (') or double (") quotes. if the value does not contain spaces, the quotes may be omitted.
R-Drive Image ignores spaces in the beginning of a line. **R-Drive Image** treats multiple spaces as one space, except when they are in a parameter value enclosed in quotes.
Examples:
Below are equal lines:

```
create -a = "c:\archive.rdr"
    create   -a = "c:\archive.rdr"
```

Below are not equal lines:

```
create -a = "c:\archive 1.rdr"
create -a = "c:\archive    1.rdr"
```

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Comments:

R-Drive Image treats lines which the first non-space character is `;` or the first non-space character is `[` and the last one is `]`, as comments.

Examples:

```
; This is a comment line
[This is a comment line]
```

Multiple lines:

If the last non-space character in a line is `\`, **R-Drive Image** appends the next line to it:

Example:

Lines:

```
create -a = "c:\archive.rdr" -s = "1:1" \
c = "5"
```

are equal to the line:

```
create -a = "c:\archive.rdr" -s="1:1" c=  "5"
```

Disk size units

Values specifying disk sizes may be in units.

b	bytes	
Kb	kilobytes	2^10 = 1,024 b
Mb	megabytes	2^20 = 1,024 Kb
Gb	gigabytes	2^30 = 1,024 Mb

If the units are used, enclose the value in quotes.

Default values are Mb (megabytes).

Characters to substitute

If the following characters are to appear in the parameter values, they should be substituted by the following rules:

Character	String to substitute
"	`"`
'	`'`
&	`&`
carriage return	`&cr;`
new line	`&nl;`

Note: This is the incompatibility with scripts created for the earlier versions of **R-Drive Image**.

Script commands and parameters:

Command Its Parameters	Optional/ Mandatory	Description and examples
`list`		Returns a partition list for a local drive or an image file
`-a=<PathOfNewArchiveFile>`	Mandatory	Specifies a path (including its file name) to the image file. Examples: `-a=C:\Images\Test.rdr` or -

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		a="C:\Image Files\Test 1.rdr"
-p=<Password>	Mandatory/Not used	Specifies an image password. Mandatory if the image file has been already encrypted. It there is a space in the password, the password should be in quotes. Examples: -p=Password or -p='My Password'
-t=<TimeSliceNumber>	Optional	Specifies which incremental data will be used to list the partitions in the image. If the TimeSliceNumber is not specified, the first data in the image will be used. -1 specifies the last incremental data in the image. first: **R-Drive Image** will use the first incremental data in the image. last: **R-Drive Image** will use the last incremental data in the image. +<n>: **R-Drive Image** will use the n-th incremental data from the beginning in the image. -<n>: **R-Drive Image** will use the n-th incremental data from the end in the image. Examples: -t="+2" specifies the second incremental data from the beginning in the image will be used to list partitions.
Example: list -a=C:\Images\Test.rdr -p="mY pasSsworRrd" This script command returns a list of partitions stored in the C:\Images\Test.rdr image file protected by the password mY pasSsworRrd.		
sysdump		Creates a system dump that may be necessary to obtain technical support. An image file can be included into that system dump. In this case, the keys -a, -p, -t from the **list** command should be used.
-sysdump="<SysDumpFile>"	Mandatory	Specifies the filename for the system dump.
Example: sysdump -sysdump="MySysDump" -a=C:\Images\Test.rdr -p="mY pasSsworRrd" This script command creates a file with the system dump, its name is MySysDump. The system dump includes the image file C:\Images\Test.rdr protected by the password mY pasSsworRrd.		

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register		Registers **R-Drive Image** from the command line.
-reg-user="<UserName>"	Mandatory	Specifies the user name for registration.
-reg-key="<RegistrationKey>"	Mandatory	Specifies the register key for registration.
-reg-company="<UserCompany>"	Optional	Specifies the company for registration.
Example: register -reg-user="Tester 1" -reg-company=R-TT Testing Team" -reg-key="fafaasertghzfvasfje134" This script command registers **R-Drive Image** for the user Tester 1 from the company R-TT Testing Team using the key fafaasertghzfvasfje134.		
Disk descriptors used in the -s and -d commands Below is the list of disk descriptors **R-Drive Image** uses to identify hard drives, logical disks, and partitions. It is written in the order of importance, from the most important descriptor to the least important one. If there are several objects with identical disk descriptors, **R-Drive Image** identifies them using the most important disk descriptor with different values.		
hdd_vtype	HDD type.	real : a basic disk dynamic : a dynamic disk pure : disk objects like USB pendrives with only one logical disk on it. Example: hdd vtype=real
hdd_size	HDD size	Disk size should be specified in bytes, no KB or MB are allowed. Example: hdd size=40060403712
hdd_name	HDD name	Example: hdd_name=SAMSUNG SP0411 NTW100-11 (denotes a space)
hdd_serial	HDD serial number	Example: hdd serial=S01JJ30X912841
hdd_bus_type	Type of the HDD bus	Can be: none, ata, atapi, scsi, floppy, usb, firewire, ssa, fibre, raid, smart, abios, sata, sata2. Example: hdd bus type=ata
hdd_port_num	Port number for HDD	Example: hdd port num=0
hdd_target_id	Target ID for HDD	Example: hdd target id=1
hdd_num	Disk number, coincides with the disk number used in the old notations.	Example: hdd_num=1
part_free_space	Free space mark	1 if this object is a disk free space, 0 if not. Example: part free space=1

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part_ofs	Partition offset in bytes.	Partition offset should be specified in bytes, no KB or MB are allowed. Example: part_ofs=16778264576
part_size	Partition size	Partition size should be specified in bytes, no KB or MB are allowed. Example: part_size=23279435776
part_fs	Partition file system	Can be: none, ntfs, fat12, fat16, fat32, exfat, ext2fs, ext3fs, ext4fs, ufs1, ufs2, hfs ,hfsplus ,hfsx, iso9660 Example: part_fs=ntfs
part_label	Disk label	Example: part_label=Test Data
part_mounted	Disk letter of folder	Example: part_mounted=G:\
part_num	Partition number, coincides with the partition number used in the old notations.	Example: part_num=2
A partition may be identified using its descriptors: hdd_size=40060403712+part_num=2+hdd_num=1 +hdd_target_id=0+hdd_bus_type=ata+part_label=Part2+part_ofs=16778264576 +part_mounted=G:\+hdd_name=SAMSUNG SP0411NTW100-11+part_size=23279435776+hdd_port_num=0+hdd_serial=S01JJ30X912831 +part_fs=ntfs+hdd_vtype=real		
create		
append		Differentially appends data to an existing image file. If such file does not exist, it will be created.
-s=<SourceDisk>	Mandatory	Specifies a source object to create the image or append to it. The <SourceDisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -s=1 for the second partition on hard drive 1: -s=1:2 for a logical disk: -s=D: for several logical disks: -s="D:F:"
-a=<PathOfNewArchiveFile>	Mandatory	Specifies a path (including its file name) to the image file.

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		Examples: `-a=C:\Images\Test.rdr` or `-a="C:\Image Files\Test 1.rdr"`
`-c=<CompressionLevel>`	Optional	Specifies compression level (1...11). Example: `-c=3`
`-u`	Optional	Backups useful information only. May be used as a Boolean parameter.
`-v=<ArchiveSize>`	Optional	Specifies image split size. May be in the float-point format. Example: `-v=650` or `-v='4.5 Gb'`
`-append-inc`	Optional	Creates an incremental backup.
`-p=<Password>`	Mandatory/Not used	Specifies an image password. Mandatory if the append command is used and the image file has been already encrypted. It there is a space in the password, the password should be in quotes. Examples: `-p=Password` or `-p='My Password'`
`-r=<Description of archive>`	Optional	Specifies an image description. It there is a space in the description, the description should be in quotes. Examples: `-r=Description` or `-r="Image Description"`
`-s-xw`	Optional	Makes **R-Drive Image** not to use the Windows snapshot provider.
`-s-xr`	Optional	Makes **R-Drive Image** not to use the R-TT snapshot provider.
`-s-n`	Optional	Notifies system application that a snapshot is being taken.
`-s-b0=<AppBeforeBack>`	Optional	Specifies an application that will start before the backup operation starts. The application should return a 0 exit code. Example: `-s-b0="C:\commands\start.exe"`
`-s-b1=<AppAfterBack>`	Optional	Specifies an application that will start after the backup operation completes. The application should return a 0 exit code. Example: `-s-b1="C:\commands\end.exe"`
`-s-s0=<AppBeforeSnapShot>`	Optional	Specifies an application that will start before the snapshot is taken.

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		The application should return a 0 exit code. Example: `-s-s0="C:\commands\startsnapshot.exe"`
`-s-s1=<AppAfterSnapShot>`	Optional	Specifies an application that will start after the snapshot is taken. The application should return a 0 exit code. Example: `-s-s1="C:\commands\endsnapshot.exe"`
`-xe=<AppIfError>`	Optional	Specifies a command line that will start an application if **R-Drive Image** fails to perform the specified action. If there is a space in the command line, the command line should be in quotes. Examples: `-xe=error.exe` or `-xe="winamp C:\sounds\error.mp3"`
`-xs=<AppIfSucc>`	Optional	Specifies a command line that will start an application if **R-Drive Image** successfully performs the specified action. If there is a space in the command line, the command line should be in quotes. Examples: `-xs=success.exe` or `-xs="winamp C:\sounds\success.mp3"`
`-bs`	Optional	Specifies that **R-Drive Image** will use backup sets.
`-bs-size="<Quota_in_MB>"`	Optional	May be used only if the `-bs` is set. Specifies the total size in MB on the disk allocated for the backup set. If it is exceeded, the backup set (all its files) will be removed. Example: `-bs-size="20000"`
`-bs-num-b="<Number_of_backs>"`	Optional	May be used only if the `-bs` is set. Specifies the number of backup sets If it is exceeded, the older backup sets (all their files) will be removed. Example: `-bs-num-b="10"`
`-bs-num-f="<Number_of_files>"`	Optional	May be used only if the `-bs` is set. Specifies the number of files in all backup sets. If it is exceeded, the older backup sets (all their files) will be removed.

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		Example: `-bs-num-f="30"`
`-bs-age="<Days>"`	Optional	May be used only if the `-bs` is set. Specifies the number of days for which **R-Drive Image** will keep the backup set. Then the backup set will be removed. Example: `-bs-age="14"`
`-cd-cache`	Optional	Used when an image file is written to CD discs. **R-Drive Image** creates an ISO image of the CD disc and then copies it to the CD disc. Without it **R-Drive Image** writes data directly to the CD disc.
`-cd-speed=<Speed>`	Optional	Used when an image file is written to CD discs. Specifies burning speed in KB/sec. Example: `-cd-speed="1200"`
`-dvd-cache`	Optional	Used when an image file is written to DVD discs. **R-Drive Image** creates an ISO image of the DVD disc and then copies it to the DVD disc. Without it **R-Drive Image** writes data directly to the DVD disc.
`-dvd-speed`	Optional	Used when an image file is written to DVD discs. Specifies burning speed in KB/sec. Example: `-dvd-speed="3324"`

Example:

```
create -s="hdd_size=40060403712+part_num=1+hdd_num=2+hdd_target_id=0
+hdd_bus_type=ata+part_label=Part1+part_ofs=1048576+part_mounted=F:\
+hdd_name=SAMSUNG&#32;SP0411NTW100-11+part_size=16777216000+hdd_port_num=0
+hdd_serial=S01JJ30X912831+part_fs=ntfs+hdd_vtype=real,hdd_size=40060403712
+part_num=2+hdd_num=2+hdd_target_id=0+hdd_bus_type=ata+part_label=Part2
+part_ofs=16778264576+part_mounted=H:\+hdd_name=SAMSUNG&#32;
SP0411NTW100-11+part_size=23279435776+hdd_port_num=0+hdd_serial=S01JJ30X912831
+part_fs=ntfs+hdd_vtype=real" -a="I:\Test Image.rdr" -c=3 -u = true -p="My
Password" -r="This is a test image" -xe="winamp C:\sounds\error.mp3" -xs="winamp
C:\sounds\success.mp3"
```

This script command creates an image of logical disks F: and H: on the Samsung HDD. The path and filename for this image file is `I:\Test Image.rdr`, with compression level 3, and only useful information on this disk will be written to the image. This image is protected with the password "My Password", and its description is "This is a test image". If the script action has been performed successfully, the winamp application will play the success.mp3 file, and if an error occurs, it will play the error.mp3 file.

`restore`		Restores data from an image to a specified disk place

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copy		Copies a disk to a disk.
-s=<SourceDisk>	Mandatory	Specifies a source object to copy. The <SourceDisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -s=1 for the second partition on hard drive 1: -s=1:2 for a logical disk: -s=D:
-d=<DestinationDisk>	Mandatory	Specifies a destination disk:partition on which the data is to be restored. The <DestinationDisk> parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid: Old notation examples: for hard drive 1: -d=1 for the second partition on hard drive 1: -d=1:2 for a logical disk: -d=D:
-a=<PathOfArchiveFile>	Mandatory	**Applicable to restore only.** Specifies a path (including its file name) to the image file from which data is to be restored. It there is a space in the path, the path should be in quotes. Examples: -a=C:\Images\Test.rdr or -a="C:\Image Files\Test.rdr"
-k=<"PartitionStatus">	Optional	Specifies a status (primary/active) for a partition to be restored. Settings: +p is a primary partition -p is a secondary partition +a is an active partition -a is a

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		non-active partition Please note that the combination "-p +a" is invalid. If this parameter is not specified, the data from the image will be used. Examples: -k="+p+a" the partition will be primary and active. -k="+p" the partition will be primary. Information in the image will be used to make the partition either active or non-active.
-t=<TimeSliceNumber>	Optional	**Applicable to `restore` only.** Specifies which incremental data will be used to restore data from the image. If the TimeSliceNumber is not specified, the first data in the image will be used. -1 specifies the last incremental data in the image. first: **R-Drive Image** will use the first incremental data in the image. last: **R-Drive Image** will use the last incremental data in the image. +<n>: **R-Drive Image** will use the n-th incremental data from the beginning in the image. -<n>: **R-Drive Image** will use the n-th incremental data from the end in the image. Examples: -t="+2" specifies the second incremental data from the beginning in the image will be used to restore data.
-lr=<DiskLetter>	Optional	Specifies a disk letter. This parameter is case-insensitive. Examples: -lr="K" or -lr=K.
-sz=<PartitionSize>	Optional	Specifies a partition size. May be in the float-point format. Example: -sz=512 or -sz='0.5 Gb'
-of=<PartitionOfset>	Optional	Specifies an offset from the beginning of the destination. May be in the float-point format. Default is 0. Example: -of=512 or -of='0.5

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		Gb'
-bs-use="<Parameter>"	Optional	**Applicable to `restore` only.** Specifies the backup set **R-Drive Image** will use to restore data. `Parameter` may be: `first`: **R-Drive Image** will use the first backup set. `last`: **R-Drive Image** will use the last backup set. `+<n>`: **R-Drive Image** will use the `n`-th backup set from the beginning. `-<n>`: **R-Drive Image** will use the `n`-th backup set from the end. `<date>`: **R-Drive Image** will use the backup set containing the `date` in its name. Examples: `-bs-use="+3"`: **R-Drive Image** will use the 3-rd backup set from the beginning. `-bs-use="20080521"`: **R-Drive Image** will use the backup set containing the "`20080521`" string in its name.
-p=<password>	Mandatory / Not used	**Applicable to `restore` only.** Mandatory for password-protected files. Specifies a password for the archive. Example: -p="my password"
-hdd-mode="<ModeType>"	Optional	**Applicable to copy/restore entire hard drives only.** Specifies an HDD copy mode when copying entire hard drives. `Parameter` may be: `0`: The default method `1`: Raw disk copy `2`: Copy all partitions onto original places `19`: One partition after another `20`: One partition after another (Fixed active partition) `51`: Expand/Shrink partition to whole disk `52`: Expand/Shrink partition to whole disk (Fixed active partition)

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Example:

```
restore -a="I:\Test Image.rdr" -s="hdd_size=40060403712+part_num=1+hdd_num=1
+hdd_target_id=0+hdd_bus_type=ata+part_label=Part2
+part_ofs=16778264576+part_mounted=G:\+hdd_name=SAMSUNG&#32;SP0411NTW100-11
+part_size=23279435776+hdd_port_num=0+hdd_serial=S01JJ30X912831+part_fs=ntfs
+hdd_vtype=real"
-d="hdd_size=40060403712+part_num=2+hdd_num=1+hdd_target_id=0+hdd_bus_type=ata
+part_label=Part2+part_ofs=16778264576+part_mounted=G:\
+hdd_name=SAMSUNG&#32;SP0411NTW100-11+part_size=23279435776+hdd_port_num=0
+hdd_serial=S01JJ30X912831+part_fs=ntfs+hdd_vtype=real"
 -p="My Password" -xe="winamp C:\sounds\error.mp3" -xs="winamp C:\sounds
\success.mp3"
```

This script command restores data to the logical disk G: on the Samsung HDD, the source image is stored in the `"I:\Test Image.rdr"`, the data is taken from the first partition in the image. This image is protected with the password "My Password". If the script action has been performed successfully, the winamp application will play the success.mp3 file, and if an error occurs, it will play the error.mp3 file.

restorefiles		Restores individual files from images to a specified destination
`-s="<SourceDisk>"`	Mandatory	Specifies a source object to restore. The `<SourceDisk>` parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid: Old notation examples: for hard drive 1: `-s=1` for the second partition on hard drive 1: `-s=1:2` for a logical disk: `-s=D:`
`-a="<PathOfArchiveFile>"`	Mandatory	Specifies a path (including its file name) to the image file from which data is to be restored. It there is a space in the path, the path should be in quotes. Examples: `-a=C:\Images\Test.rdr` or `-a="C:\Image Files\Test.rdr"`
`-filelist="<ListOfFilesToRestore>"`	Mandatory	Specifies list of files from the image that should be restored. Example: `-filelist="MyPhoto/*,Photo/Picture 001.jpg,Photo/Picture 003.jpg"`
`-outdir="<OutputFolder>"`	Mandatory	Specifies the folder to which files

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		will be restored. Example: `-outdir="D:\1111"`
Example: `restorefiles -s="hdd_size=7509196800+part_num=1+hdd_num=1+hdd_target_id=0 +hdd_bus_type=ata+part_label=NTFS-Test+part_ofs=64512+part_mounted=F:\ +hdd_name=WDC WD75DA-00AWA107.21L07 +part_size=3141991936+hdd_port_num=0+hdd_serial=WD-WMA1J1262876+part_fs=ntfs +hdd_vtype=real" -a="I:\Test_Image.rdr" -t="+1" -filelist="MyPhoto/*,Photo/Picture 001.jpg, Photo/Picture 003.jpg,Photo/Picture 005.jpg,Photo/Picture 007.jpg,Photo/Picture 009.jpg,Photo/Picture 010.jpg,Photo/Picture 011.jpg, Photo/Picture 013.jpg,Photo/Picture 015.jpg,Photo/Picture 016.jpg,Photo/Picture 017.jpg,Photo/Picture 018.jpg,Photo/Picture 019.jpg,Photo/Picture 020.jpg, Photo/Picture 021.jpg,Photo/Picture 022.jpg,Photo/Picture 023.jpg, Photo/Picture 024.jpg,Photo/Picture 025.jpg,Photo/Picture 026.jpg,Photo/Picture 027.jpg,Photo/Picture 028.jpg" -outdir="D:\1111"` This script command restores the specified files to the destination path `D:\1111` from the source image of the first partition of the hard drive stored in the file `I:\Test Image.rdr`.		
`check`		Checks consistency of the archive
`-a=<PathOfArchiveFile>`	Mandatory	Specifies a path (including its file name) to the image which integrity is to be checked. It there is a space in the path, the path should be in quotes. Examples: `-a=C:\Images \Test.rdr` or `-a="C:\Image Files\Test.rdr"`
Example: `check -a="I:\Test Image.rdr"` This script command checks the image file `I:\Test Image.rdr` for its consistency.		
`mount`		Connects an image file as a read-only virtual disk.
`-a=<PathOfNewArchiveFile>`	Mandatory	Specifies a path (including its file name) to the image file. Examples: `-a=C:\Images\Test.rdr` or `-a="C:\Image Files\Test 1.rdr"`
`-s=<SourceDisk>`	Mandatory	Specifies an object in the image to connect. The `<SourceDisk>` parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid:

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		Old notation examples: for the second partition on hard drive 1: `-s=1:2` for a logical disk: `-s=D:`
`-lr=<DiskLetter>`	Mandatory	Specifies a disk letter. This parameter is case-insensitive. Examples: `-lr="K"` or `-lr=K`.
`-t=<TimeSliceNumber>`	Optional	Specifies which incremental data in the image will be used to connect a disk. If the `TimeSliceNumber` is not specified, the first data in the image will be used. `-1` specifies the last incremental data in the image. `first`: **R-Drive Image** will use the first incremental data in the image. `last`: **R-Drive Image** will use the last incremental data in the image. `+<n>`: **R-Drive Image** will use the `n`-th incremental data from the beginning in the image. `-<n>`: **R-Drive Image** will use the `n`-th incremental data from the end in the image. Examples: `-t="+2"` specifies the second incremental data from the beginning in the image will be used to connect a disk.
`-bs-use="<Parameter>"`	Optional	Specifies the backup set **R-Drive Image** will use to connect as a logical disk. `Parameter` may be: `first`: **R-Drive Image** will use the first backup set. `last`: **R-Drive Image** will use the last backup set. `+<n>`: **R-Drive Image** will use the `n`-th backup set from the beginning. `-<n>`: **R-Drive Image** will use the `n`-th backup set from the end. `<date>`: **R-Drive Image** will use the backup set containing the `date` in its name. Examples: `-bs-use="+3"`: **R-Drive Image** will use the 3-rd backup set from the beginning.

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		`-bs-use="20080521"`: **R-Drive Image** will use the backup set containing the "`20080521`" string in its name.
Example: `mount -a="I:\Test Image.rdr" -s=1:2 lr=F: -t=-1` This script command connects the second partition of the first hard drive contained in the image file `I:\Test Image.rdr`. The virtual logical disk will have the F: letter.		
`unmount`		Disconnects a mounted virtual disk.
`-lr=<DiskLetter>`	Mandatory	Specifies a disk letter. This parameter is case-insensitive. Examples: `-lr="K"` or `-lr=K`.
Example: `unmount lr=F:` This script command disconnects the virtual logical disk F:.		
`activate`		Sets a specified partition active. The required partition should be specified
`-s=<SourceDisk>`	Mandatory	Specifies the partition on the disk to set active. The `<SourceDisk>` parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid: Old notation examples: for the second partition on hard drive 1: `-s=1:2` for a logical disk: `-s=D:`
Example: `activate -s=1:1` This script command set the first partition of the first hard drive active.		
`delete`		Deletes a partition on a drive The required partition should be specified
`-s=<SourceDisk>`	Mandatory	Specifies a partition to delete. The `<SourceDisk>` parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this

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		table. Old notation is also valid: Old notation examples: for the second partition on hard drive 1: `-s=1:2` for a logical disk: `-s=D:`
Example: `delete -s=F:` This script command deletes the logical disk F:.		
`clear`		Deletes all partitions on a drive
`-s=<SourceDisk>`	Mandatory	Specifies the hard drive where all partitions should be deleted. The `<SourceDisk>` parameter consists of one or several disk descriptors written in the form: descriptor_name1=value[+descriptor_name1=value...]. The disk descriptors are presented in the **Disk descriptors** section of this table. Old notation is also valid: Old notation examples: for hard drive 1: `-s=1`
`-part-type=<PartitionType>`	Optional/Mandatory	Specifies a partition layout type to be created on the hard drive. `<PartitionType>` may be: mbr: **R-Drive Image** will create the MBR layout. gpt: **R-Drive Image** will create the GPT layout. If omitted, the existing partition layout table will be cleared. Mandatory if no partition layout exists on the hard drive.
Example: `clear -s=2` This script command deletes all partitions on the second hard drive.		
`fixmbr`		Installs a default boot loader on a hard drive
`-s=<SourceDisk>`	Mandatory	Specifies the hard drive where the boot loader will be installed. Example: for hard drive 1: `-s=1`
Example: `fixmbr -s=1` This script command installs the default boot loader to the first hard drive.		
`mail`	Optional	Specifies all mail options globally for

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		the entire script
Example: `mail -ms=mail.example.com -ma=rtt1@example.com -mr=rtt2@example.com -ml=rtt1:password -me -mx` This script command sends e-mails confirming success or error of the action from `rtt1@example.com` to `rtt2@example.com` via the mail.example.com SMTP server using the default (25) port with the `rtt1` login and `password` password.		
Parameters applicable to all commands These parameters can be used in all commands		
`-log="<LogOptions>"`	Optional	Controls the way **R-Drive Image** logs its command-line activity. By default, it outputs its activity into WinNT event log if started from Windows scheduler, but can create its own xml-type log files. `LogOptions` may be: `#nodefault`: disables the default log output into syslog `<filename>`: writes the log to the specified file name and path. Example: `c:\mylogs\mylog.txt`. The "," character in the file name should be doubled. `<filepath>`: writes the log files (a separate one to each session) to the specified folder. Each file name will have the following filename: `date_time.rdl`. Examples: `c:\mydir\`, file name: `20081003_215302.rdl`. `#syslog`: output logs into WinNT event log. `#sysdir`: outputs logs into `C:\Documents and Settings\All Users\Application Data\R-TT\R-Drive Image\Logs\`. Example: `-log="#nodefault,c:\mylog.txt,c:\mydir\,#sysdir"` This will make **R-Drive Image** write its logs to the `c:\mylog.txt` file, and to the `c:\mydir\` and `C:\Documents and Settings\All Users\Application Data\R-TT\R-Drive Image\Logs\` folders without writing to WinNT event log.

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mail options	Optional	Sends e-mail messages if the action fails or succeeds and specifies e-mail parameters. If a personal firewall is installed on your computer, you should allow the `r-driveimagecl.exe` application to get access to the e-mail server.
`-me`	Optional	Sends an e-mail message when **R-Drive Image** fails to perform the specified action. May be used as a Boolean parameter.
`-mx`	Optional	Sends an e-mail message when **R-Drive Image** successfully performs the specified action. May be used as a Boolean parameter.
`-ms=<SMTPServer[:port]>`	Mandatory/Not used	Mandatory if the `-me` or/and `-mx` option is used. Specifies an SMTP server and port (optional). Examples: `-ms=mail.example.com` or `-ms=mail.example.com:25`
`-ma=<SenderEmail>`	Mandatory/Not used	Mandatory if the `-me` or/and `-mx` option is used. Specifies a sender's e-mail address. Example: `-ma=rtt1@example.com`
`-mr=<RecepientEmail>`	Mandatory/Not used	Mandatory if the `-me` or/and `-mx` option is used. Specifies a recipient's e-mail address or addresses. Example: `-ma=rtt2@example.com`
`-ml=<Login:Password>`	Optional	Specifies a login and password at the SMTP server. Example: `-ml=rtt1:password`

Boolean parameters

Those are parameters that may have Boolean values:

`true`, `1`, `yes`, `false`, `0`, `no`.

They may be used as keys (example: `-u`) or as parameters with values (example: `-u=true`).

Entities or Variables.

Entities may be used as variables to create various text strings. They are start with `&` and end with `;`.

Version Entities.

In the examples below, the **R-Drive Image** version is assumed as 4.1.67

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Entity	Description
&rdi.ver;	The **R-Drive Image** version. Example: "4.1"
&rdi.ver.build;	The **R-Drive Image** build. Example: "4167"
&rdi.ver.major;	The **R-Drive Image** major version. Example: "4"
&rdi.ver.minor;	The **R-Drive Image** minor version. Example: "1"
&rdi.ver.subminor;	The **R-Drive Image** sub-minor version. Example: "67"

Result Entities

Entity	Description
&rdi.last_result;	Returns the last result of **R-Drive Image** operation. May be undefined, success, failed.

Time Entities.

In the examples below, the system time is assumed as 11:10:04 AM

Entity	Description
&sys.time;	System time in the locale format. Example: "11:10:04". Please note that it is impossible to use this entity in file names because it contains an invalid character :.
&sys.time.m;	Minutes
&sys.time.h;	Hours in the 24 h format
&sys.time.h12;	Hours in the 12 h format
&sys.time.h24;	Hours in the 24 h format
&sys.time.s;	Seconds
&sys.time._m;	PM or AM

Date Entities.

In the examples below, the system date is assumed as February 1, 2007, Thursday

Entity	Description
&sys.date;	System date in the locale format. Example: "29/01/07". Please note that it is not recommended to use this entity in file names because that will create a chunk of folders.
&sys.date.d;	Month day. Example: "01"
&sys.date.m;	Month. Example: "02"
&sys.date.y;	Short year. Example: "07"
&sys.date.yyyy;	Long year. Example: "2007"
&sys.date.m.name;	Month name. Example: "February"
&sys.date.m.nm;	Short month name. Example: "Feb"
&sys.date.wd;	Week day number, starting from Sunday. Example: "5"
&sys.date.wd.name;	Week day name. Example: "Thursday"
&sys.date.wd.nm;	Short week day name. Example: "Th"

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Enumeration Entities

Entity	Description
`&rdi.enum;`	Defines the number of calls to this entity. Starts from `0`.
`&rdi.enum.<Num>;`	Defines the number of calls to this entity. Starts from `0`. `Num` specifies the format of the number. Example: `&rdi.enum.3;` will return `001` for the second calls to this entity.

User-defined entities

You may create your own entities using the `set` command. Example:

```
set creat_date = "&sys.date.m.name;-&sys.date.d;-&sys.date.y;"
```

You may use this entity, for instance, set a command creating files with their date of creation as the file name:

```
create -a="D:\archive\&creat_date;.rdr" -s="c:"
```

If the date when the script has been run is February 1, 2007, Thursday, this command will create an image of the logical disk C: and write it to the `D:\archive\February-01-07.rdr` file.

Please note that the `set` command defines the entities rather than specifies their value. The actual value of an entity will be determined each time the entity is used. Example:

```
set creat_time = "&sys.time.h24;-&sys.time.m;-&sys.time.s;"
```

and the `creat_time` entity is used in two commands in a script:

```
create -a="D:\archive\&creat_time;.rdr" -s="c:"
create -a="D:\archive\&creat_time;.rdr" -s="c:"
```

R-Drive Image will create two different files with different file names, each representing the time of file creation.

The `unset` command deletes entities. Example:

```
unset creat_date creat_time
```

After this command the `creat_date` and `creat_time` entities cannot be used and cause **R-Drive Image** to generate an error if they appear further in the script.

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

5.3 Backup Sets

A backup set is a set of files (usually a file for a full image of an object and a number of its incremental/differential backups) which **R-Drive Image** treats as one unit. Backup sets may be used when a number of tasks/scripts are used to create images of the same objects with the same filenames but with different parameters. Backup sets make it possible for you to flexibly control the parameters of complex backup tasks.

You may specify a total size allocated for the image files, a number of image files you want to keep, and the time for which you want to keep the data, etc.

You may do that on the **Imaging Mode** panel.

Backup sets parameters

Note: R-Drive Image will keep at least one backup set, regardless of the parameters specified.

Zero parameter value disables the parameter.

Backup set size quota	Specifies the total size on the disk in MB allocated for the backup

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	set. If it is exceeded, the older backup set (all its files) will be removed when a new backup set is created.
Maximum number of backup sets	Specifies the number of backup sets If it is exceeded, the older backup sets (all their files) will be removed when a new backup set is created.
Maximum number of image files	Specifies the number of files in all backup sets. If it is exceeded, the older backup sets (all their files) will be removed when a new backup set is created.
Maximum backup set age	Specifies the number of days for which **R-Drive Image** will keep the oldest backup set. Then the backup set will be removed when a new backup set is created.
Also apply the settings before creating a new image	If this option is selected, the settings will be applied twice, before and after a new image file has been created. For example, if the number of files is set to 2, and there are 2 files already, one file will be deleted before a new image file will be created.

Backup set example

For example, you want to create an image file of your disk with the following conditions:

- A full backup of a disk once a week (Friday, 8:00 PM) and incremental backups on other days at the same time.
- The total size on the disk that may be used to store the image files is 20 GB.
- The number of backup sets is 3, the total number of files not exceeding 30.
- The oldest backup set should be removed in 21 days when a new backup set is created.

Then you need to create two tasks: one for the full data backup on Friday, the second one for the incremental data backup at 8:00 PM on all days except Friday.

The setting should be the following:

On the Image Destination panel

For the both task:

File name: I:\Test_Image.rdr

On the Imaging Mode panel:

For the both task:

Use backup sets	Selected
Backup size quota	20000
Maximum number of backup sets	3
Maximum number of image files	30
Maximum backup set age	21

For the full data backup task

Create a new full image	Selected

For the incremental backup task

Append changes incrementally to the last image in the backup set	Selected

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On the Time/Event panel:

For the full data backup task

Perform the task	Weekly
Run this task every	1 week(s)
On the days	Friday
Start time	8:00 PM
Start Date:	4/4/2008

For the incremental backup task

Perform the task	Weekly
Run this task every	1 week(s)
On the days	Sunday, Monday, Tuesday, Wednesday, Thursday, Saturday
Start time	8:00 PM
Start Date:	4/4/2008

File name convention:

Full backup: `<FIleName>_<Date_of_First_Backup>_<Time_of_First_Backup>_1.rdr`

Incremental backup: `<FIleName>_<Date_of_First_Backup>_<Time_of_First_Backup>_N+1.rdr`

N is the number of incremental backup

The files created

Date Day	Files created on the destination;Comments
4/4/2008 Friday	Test_Image_04042008_200000_1.rdr ;Full backup 1
4/5/2008 Saturday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1
4/6/2008 Sunday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2
4/7/2008 Monday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3
4/8/2008 Tuesday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4
4/9/2008 Wednesday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5
4/10/2008 Thursday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3

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	Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6
4/11/2008 Friday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2
4/12/2008 Saturday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1
4/13/2008 Sunday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2
.....	.....
4/17/2008 Thursday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2 Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6
4/18/2008 Friday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6

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	Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2 Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6 Test_Image_18042008_200000_1.rdr ;Full backup 3
4/19/2008 Saturday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2 Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6 Test_Image_18042008_200000_1.rdr ;Full backup 3 Test_Image_18042008_200000_2.rdr ;Incremental backup 3:1
4/20/2008 Sunday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2 Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6 Test_Image_18042008_200000_1.rdr ;Full backup 3 Test_Image_18042008_200000_2.rdr ;Incremental backup 3:1 Test_Image_18042008_200000_3.rdr ;Incremental backup 3:2
.....	.....
4/24/2008 Thursday	Test_Image_04042008_200000_1.rdr ;Full backup 1 Test_Image_04042008_200000_2.rdr ;Incremental backup 1:1 Test_Image_04042008_200000_3.rdr ;Incremental backup 1:2 Test_Image_04042008_200000_4.rdr ;Incremental backup 1:3 Test_Image_04042008_200000_5.rdr ;Incremental backup 1:4 Test_Image_04042008_200000_6.rdr ;Incremental backup 1:5 Test_Image_04042008_200000_7.rdr ;Incremental backup 1:6 Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2

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	Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6 Test_Image_18042008_200000_1.rdr ;Full backup 3 Test_Image_18042008_200000_2.rdr ;Incremental backup 3:1 Test_Image_18042008_200000_3.rdr ;Incremental backup 3:2 Test_Image_18042008_200000_4.rdr ;Incremental backup 3:3 Test_Image_18042008_200000_5.rdr ;Incremental backup 3:4 Test_Image_18042008_200000_6.rdr ;Incremental backup 3:5 Test_Image_18042008_200000_7.rdr ;Incremental backup 3:6
4/25/2008 Friday	;Full backup 1 is deleted (All its files) Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2 Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6 Test_Image_18042008_200000_1.rdr ;Full backup 3 Test_Image_18042008_200000_2.rdr ;Incremental backup 3:1 Test_Image_18042008_200000_3.rdr ;Incremental backup 3:2 Test_Image_18042008_200000_4.rdr ;Incremental backup 3:3 Test_Image_18042008_200000_5.rdr ;Incremental backup 3:4 Test_Image_18042008_200000_6.rdr ;Incremental backup 3:5 Test_Image_18042008_200000_7.rdr ;Incremental backup 3:6 Test_Image_25042008_200000_1.rdr ;Full backup 4
4/26/2008 Saturday	Test_Image_11042008_200000_1.rdr ;Full backup 2 Test_Image_11042008_200000_2.rdr ;Incremental backup 2:1 Test_Image_11042008_200000_3.rdr ;Incremental backup 2:2 Test_Image_11042008_200000_4.rdr ;Incremental backup 2:3 Test_Image_11042008_200000_5.rdr ;Incremental backup 2:4 Test_Image_11042008_200000_6.rdr ;Incremental backup 2:5 Test_Image_11042008_200000_7.rdr ;Incremental backup 2:6 Test_Image_18042008_200000_1.rdr ;Full backup 3 Test_Image_18042008_200000_2.rdr ;Incremental backup 3:1 Test_Image_18042008_200000_3.rdr ;Incremental backup 3:2 Test_Image_18042008_200000_4.rdr ;Incremental backup 3:3 Test_Image_18042008_200000_5.rdr ;Incremental backup 3:4 Test_Image_18042008_200000_6.rdr ;Incremental backup 3:5 Test_Image_18042008_200000_7.rdr ;Incremental backup 3:6 Test_Image_25042008_200000_1.rdr ;Full backup 4 Test_Image_18042008_200000_2.rdr ;Incremental backup 4:1
.....	.....

Please note, that the oldest backup set would be deleted if the total size exceeds 20 GB or the number of all files from all backup sets exceeds 30.

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VI Technical Informaiton

This chapter gives technical information on

- Logging
- Creating consistent point-in-time backups
- Support for Various Disk Partition Schemes and File Systems
- Supported CD and DVD Recorders
- List of Hardware Devices Supported in the Startup Mode

The Disk Actions chapter explains disk actions such as:

- Create an Image of a partition, logical disk, or entire hard drive
- Restore Data from an Image
- Copy Disk to Disk to make an exact copy of one disk on another
- Connect an Image as a Virtual Logical Disk **(read-only)**
- Disconnect Virtual Logical Disks
- Check an Image File to check an existing image file

The RAIDs, and Various Disk and Volume Managers chapter explains how to perform disk actions with various compound volumes such as:

- Windows Software RAIDs, Spanned, and Other Volumes
- Windows Storage Spaces
- Mac RAIDs
- Linux Logical Volume Manager Volumes

The Startup Version chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- Create Startup Disk
- Restoring Data to a System or Other Locked Disk
- Create an Image Using the Startup Disks
- Disk to Disk Copy Using the Startup Disks

The Scheduled Actions, Command Line Operations, and Scripting chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

- Scheduler and Unattended Actions
- Scripting and Command Line Operations
- Backup sets

The R-Drive Image OEM kit chapter explains how computer system integrators can create system recovery disks for their systems

- Create a Master Image
- Create Startup Media

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Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

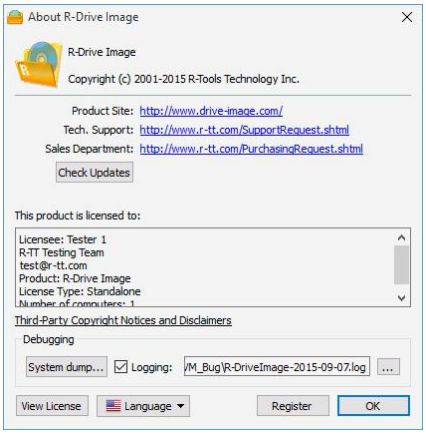
6.1 Logging

You may turn on logging.

To turn logging on:

1 **Click the About button**

2 **Select Logging and specify a log file name and its path on the About R-Drive Image dialog box..**



6.2 Creating Consistent Point-in-Time Backups

Some programs may write some data on the disk while **R-Drive Image** is creating a data backup. To avoid data inconsistency, **R-Drive Image** uses two mechanisms for creating consistent point-in-time backups.

Windows XP, Windows Server 2003, Windows Vista, and later

R-Drive Image uses Microsoft Volume Shadow Copy Service (VSS) to notify other applications supporting this service that it is going to start a data backup process in order for them to flash all necessary data to the disk. Most applications like Microsoft Exchange Server, Microsoft SQL Server, and Oracle software support this service.

Options Windows Volume Snapshot Service and Notify system application on the **Backup Options** panel enable/disable the use of this service.

If a software that does not support VSS runs on your computer, you may use Backup AUX applications and Snapshot AUX applications on the **Backup Options** panel (and their respective commands/parameters in scripts) to send special commands to your application that will make that application flush its data to the disk before the backup process starts.

Windows 2000 and earlier

R-Drive Image uses its own driver to create a file system snapshot but it does not notify other applications that it is going to start a backup process. Therefore, if an application stores some of its data in memory, they will not be saved in the backup file. To avoid data inconsistency, we recommend you to use Backup AUX applications and Snapshot AUX applications on the **Backup Options** panel (and their respective commands/parameters in scripts) to send special commands to your application that will make that application flush its data to the disk before the backup process starts.

Option R-TT Volume Snapshot Service on the **Backup Options** panel enables/disables the use of this service.

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Backup Options

Snapshot provider	A snapshot provider is a service **R-Drive Image** uses to read the disk content while creating its image. **R-Drive Image** uses the snapshot providers in the order specified on the tab. If it fails to use the first one selected, it tries to use the second one, and so on.
Windows Volume Snapshot Service	If this check box is selected, **R-Drive Image** will try to use the Windows native snapshot provider. This snapshot provider is able to notify system applications that a snapshot is being taken. If this option is selected, `pagefile.sys` and `hibernate.sys` files are excluded from the image of the system disk.
R-TT Volume Snapshot Service	If this check box is selected, **R-Drive Image** will try to use R-TT snapshot provider. This snapshot provider is not able to notify system applications that a snapshot is being taken.
Notify system applications	If this check box is selected, the snapshot provider, if it supports this feature, notifies system applications that a snapshot is being taken.
Process priority	These options specify how much computer resources **R-Drive Image** will consume during a backup process.
Backup Process Priority	Specifies the priority of the backup process. Similar to that specified in Windows Task Manager.
Use CPU cores	Specifies how many processor cores **R-Drive Image** will use for the backup process.
Ignore disk read errors (bad sectors)	If this check box is selected, **R-Drive Image** will ignore possible read errors when it tries to read data from bad sectors. **R-Drive Image** works with disks with bad sectors in the following way: It reads a certain part of disk (predefined by Windows) and • If read errors are ignored, the entire part with bad sectors will be filled with zeros. • If read errors are not ignored, **R-Drive Image** reads that part sector by sector and shows a warning message for every bad sector with two options: skip the sector or try to read it again. In this case only the bad sectors will be filled with zeros, but all that requires manual actions and extremely slows the imaging process. Please note that **R-Drive Image** is developed for the work with normally functioning disks. If you need to image a malfunctioning disk, use **R-Studio**, a data recovery utility. It has more controls for imaging, and can create **R-Drive Image**-compatible images even in its demo mode, that is, without registering.
Backup AUX applications	**R-Drive Image** is able to make applications run before and after all backup operations. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application **R-Drive Image** starts before the backup operations starts. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
After	An application **R-Drive Image** starts after the backup operations completes. If

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	you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
Snapshot AUX applications	**R-Drive Image** is able to make applications run before and after taking the snapshot of one or several volumes. Please note that those application should return a 0 exit code. Leave these fields blank if in doubt.
Before	An application **R-Drive Image** starts before it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
After	An application **R-Drive Image** starts after it takes the snapshot of one or several volumes. If you need to start several application, you may use a command file. Example: `"cmd.exe /c example.bat"`
Save as default	Click this button to make the current settings default.
Reset	Click this button to reset the current settings default.
Restore defaults	Click this button to restore default settings.

If any of Backup AUX applications and Snapshot AUX applications are executed, the following environment variables are set:

`R_CALLBACK_UID`	A unique digital backup id used in all calls for external commands pertaining to that backup process.

`R_CALLBACK_STAGE`	Takes the following values:
	`BEFORE_BACKUP`
	`AFTER_BACKUP`
	`BEFORE_SNAPSHOT`
	`AFTER_SNAPSHOT`

`R_VOLUME_NAMES`	A comma-separated name list of partitions to be processed.
`R_VOLUME_GUIDS`	A comma-separated GUID list of partitions to be processed

Therefore, the same command may be used for all the fields provided it will determine using `R_CALLBACK_STAGE` in which context it is called.

Below is an example of the variables when disks `C:` and `D:` are being backed up:

```
R_CALLBACK_UID=2008
R_CALLBACK_STAGE=BEFORE_BACKUP
R_VOLUME_NAMES=C:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=BEFORE_SNAPSHOT
R_VOLUME_NAMES=C:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_SNAPSHOT
R_VOLUME_NAMES=C:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=BEFORE_SNAPSHOT
```

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```
R_VOLUME_NAMES=D:
R_VOLUME_GUIDS={9636e065-f75e-11dc-981a-829328f78201}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_SNAPSHOT
R_VOLUME_NAMES=D:
R_VOLUME_GUIDS={9636e065-f75e-11dc-981a-829328f78201}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_BACKUP
R_VOLUME_NAMES=C:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}
```

Note: If the system settings permit, several disks may appear in one snapshot. Then the following calls will appear:

```
R_CALLBACK_UID=2008
R_CALLBACK_STAGE=BEFORE_BACKUP
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=BEFORE_SNAPSHOT
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_SNAPSHOT
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}

R_CALLBACK_UID=2008
R_CALLBACK_STAGE=AFTER_BACKUP
R_VOLUME_NAMES=?:,D:
R_VOLUME_GUIDS={d5f570a1-2978-11dc-83bf-005056c00008},{9636e065-f75e-11dc-981a-
829328f78201}
```

6.3 Support for Various Disk Partition Schemes and File Systems

R-Drive Image supports various non-MBR/GPT disk partition schemes: Dynamic disk, BSD Slice, Apple Partition Map with the following restrictions:

- Changes in disk partition layout are supported for basic (regular) MBR/GPT disks. **R-Drive Image** can change partition layout (the number of partitions and their sizes) while restore the data.
- The other partition layouts may be backed up and then restored only on their original places or other partitions of the same size. For example, a backup of dynamic disk `D:` may be restored on disk `D:`, or on any other dynamic partition provided that its size matches exactly that of disk `D:`.
- A basic partition may be restored on another partition of another layout with the above limitation, and a partition of another layout may be restored as a basic one without limitations.

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Partitions with various file systems are supported by **R-Drive Image** differently:

File system	Imaging/Copy	Restore	Partition Resizing*	Virtual Disk Connection
FAT (16/32), NTFS	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files.	Yes.	Yes
exFAT, ReFS	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files.	No	Yes (if the Windows version supports)
HFS/HFS+, Little and Big Endian variants of UFS1/ UFS2 and Ext2/Ext3/ Ext4 FS (Linux)	Byte-by-byte and Useful Information Only	Entire partition and Selected folders and files.	No	No (Yes, if third-party file system drivers are installed)
Unknown	Byte-by-byte	Entire partition	No	No

* For non-MBR/GPT disk partition schemes, partition resizing can be done within existing disk partition layout.

6.4 Supported CD and DVD Recorders

Supported CD recorders

All IDE/SCSI/USB/FireWire (IEEE1394) CD recorders compatible with the MMC specification.

Supported DVD recorders

Any DVD+R/RW or DVD-R/RW drives for which packet (UDF) record software is installed (DirectCD/ InCD/DLA). DVD discs should be formatted.

The **Disk Actions** chapter explains basic disk actions.
The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.
The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

6.5 List of Hardware Devices Supported in the Startup Mode

In the startup mode, **R-Drive Image** supports the following hardware devices:

Data Storage Devices

Serial ATA and Parallel ATA drivers

ACPI firmware driver for PATA
ACard AHCI variant (ATP 8620)
AHCI SATA
ALi PATA
AMD/NVidia PATA

Networking Devices

3Com 3c574 PCMCIA
3Com 3c589 PCMCIA
3c501 `EtherLink`
3c503 `EtherLink II`
3c505 `EtherLink Plus`
3c507 `EtherLink 16`

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ARTOP 6210/6260 PATA
ARTOP/Acard ATP867X PATA
ATI PATA
CMD / Silicon Image 680 PATA
CMD640 PCI PATA
CMD64x PATA
CS5510/5520 PATA
CS5530 PATA
CS5535 PATA
CS5536 PATA
Compaq Triflex PATA
Cypress CY82C693 PATA
EFAR SLC90E66
Generic ATA
HPT 343/363 PATA
HPT 366/368 PATA
HPT 370/370A/371/372/374/302 PATA
HPT 371N/372N/302N PATA
IT8211/2 PATA
IT8213 PATA
Initio 162x SATA
Intel ESB, ICH, PIIX3, PIIX4 PATA/SATA
Intel PATA MPIIX
Intel PATA old PIIX
Intel SCH PATA
JMicron PATA
Legacy ISA PATA
Marvell PATA support via legacy mode
Marvell SATA
NETCELL Revolution RAID
NVIDIA SATA
Nat Semi NS87410 PATA
Nat Semi NS87415 PATA
Ninja32/Delkin Cardbus ATA
OPTI FireStar PATA
OPTI621/6215 PATA
Older Promise PATA controller
PCMCIA PATA
Pacific Digital ADMA
Pacific Digital SATA QStor

3c509/3c529 (MCA)/3c579 `EtherLink III`
3c515 ISA `Fast EtherLink`
3c590/3c900 series (592/595/597) `Vortex/ Boomerang`
3cr990 series `Typhoon`
AMD 8111 (new PCI LANCE)
AMD LANCE and PCnet (AT1500 and NE2100)
AMD PCnet32 PCI
AT1700/1720
Adaptec Starfire/DuraLAN
Alteon AceNIC/3Com 3C985/NetGear GA620 Gigabit
Ansel Communications EISA 3200
Apricot Xen-II on board Ethernet
Asix AX88190 PCMCIA
Atheros L1C Gigabit Ethernet
Atheros L1E Gigabit Ethernet
Atheros L2 Fast Ethernet
Atheros/Attansic L1 Gigabit Ethernet
Broadcom 440x/47xx ethernet
Broadcom CNIC
Broadcom NetXtremeII
Broadcom NetXtremeII 10Gb
Broadcom Tigon3
Brocade 1010/1020 10Gb Ethernet Driver
CS89x0
Cabletron E21xx
Chelsio 10Gb Ethernet
Chelsio Communications T3 10Gb Ethernet
Chelsio Communications T4 Ethernet
Chelsio Communications T4 Virtual Function Ethernet
Cisco VIC Ethernet NIC Support
DECchip Tulip (dc2114x) PCI
DL2000/TC902x-based Gigabit Ethernet
Dave ethernet support (DNET)
Davicom DM910x/DM980x
Early DECchip Tulip (dc2104x) PCI
EtherExpress 16
EtherExpressPro support/EtherExpress 10 (i82595)
Exar X3100 Series 10GbE PCIe Server Adapter
Exar Xframe 10Gb Ethernet Adapter

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Platform AHCI SATA
Promise PATA 2027x
Promise SATA SX4
Promise SATA TX2/TX4
QDI VLB PATA
RADISYS 82600 PATA
RDC PATA
SC1200 PATA
SERVERWORKS OSB4/CSB5/CSB6/HT1000 PATA
ServerWorks Frodo / Apple K2 SATA
SiS 964/965/966/180 SATA
SiS PATA
Silicon Image 3124/3132 SATA
Silicon Image SATA
Toshiba Piccolo
ULi Electronics SATA
VIA PATA
VIA SATA
VITESSE VSC-7174 / INTEL 31244 SATA
Winbond SL82C105 PATA
Winbond W83759A VLB PATA

SCSI low-level drivers

3ware 5/6/7/8xxx ATA-RAID
3ware 97xx SAS/SATA-RAID
3ware 9xxx SATA-RAID
7000FASST SCSI
ACARD SCSI
ARECA (ARC11xx/12xx/13xx/16xx) SATA/SAS RAID Host Adapter
Adaptec AACRAID
Adaptec AHA152X/2825
Adaptec AHA1542
Adaptec AIC79xx U320
Adaptec AIC7xxx
Adaptec AIC7xxx Fast -> U160
Adaptec AIC94xx SAS/SATA
Adaptec I2O RAID
AdvanSys SCSI
Always IN2000 SCSI
Fujitsu FMV-J18x PCMCIA
Generic DECchip & DIGITAL EtherWORKS PCI/EISA
HP 10/100VG PCLAN (ISA, EISA, PCI)
HP PCLAN (27245 and other 27xxx series)
HP PCLAN+ (27247B and 27252A)
ICL EtherTeam 16i/32
IP1000 Gigabit Ethernet
Intel(R) 10GbE PCI Express adapters
Intel(R) 82575/82576 PCI-Express Gigabit Ethernet
Intel(R) 82576 Virtual Function Ethernet
Intel(R) PRO/100+
Intel(R) PRO/1000 Gigabit Ethernet
Intel(R) PRO/1000 PCI-Express Gigabit Ethernet
Intel(R) PRO/10GbE
JMicron(R) PCI-Express Gigabit Ethernet
LP486E on board Ethernet
Marvell Yukon 2
Marvell Yukon Gigabit Ethernet
Mellanox Technologies 10Gbit Ethernet
Micrel KS8851 MLL
Micrel KSZ8841/2 PCI
Myricom Myri-10G Ethernet
Myson MTD-8xx PCI Ethernet
NE2000 compatible PCMCIA
NE2000/NE1000
NI5210
NI6510
National Semiconductor DP8381x series PCI Ethernet
National Semiconductor DP83820
NetXen Multi port (1/10) Gigabit Ethernet NIC
New Media PCMCIA
OKI SEMICONDUCTOR IOH(ML7223/ML7831) GbE
OpenCores 10/100 Mbps Ethernet MAC
PCI NE2000 and clones support (see help)
QLOGIC QLCNIC 1/10Gb Converged Ethernet NIC Support
QLogic QLA3XXX Network Driver Support
QLogic QLGE 10Gb Ethernet Driver Support

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BusLogic SCSI
DMX3191D SCSI
DTC3180/3280 SCSI
EATA ISA/EISA/PCI (DPT and generic EATA/DMA-compliant boards)
Emulex LightPulse Fibre Channel Support
Future Domain 16xx SCSI/AHA-2920A
Generic NCR5380/53c400 SCSI MMIO
Generic NCR5380/53c400 SCSI PIO
HP Smart Array SCSI driver
HighPoint RocketRAID 3xxx/4xxx Controller
IBM Power Linux RAID adapter
IBM ServeRAID
Initio 9100U(W)
Initio INI-A100U2W
Intel(R) C600 Series Chipset SAS Controller
Intel/ICP (former GDT SCSI Disk Array) RAID Controller
LSI Logic Legacy MegaRAID Driver
LSI Logic Management Module
LSI Logic MegaRAID Driver
LSI Logic MegaRAID SAS RAID Module
LSI MPT Fusion SAS 2.0 Device Driver
Marvell 88SE64XX/88SE94XX SAS/SATA
Microsoft Hyper-V virtual storage driver
NCR53c406a SCSI
PAS16 SCSI
PMC SIERRA Linux MaxRAID adapter
PMC-Sierra SPC 8001 SAS/SATA Based Host Adapter driver
Promise SuperTrak EX Series
QLogic ISP4XXX and ISP82XX host adapter family
QLogic QLA2XXX Fibre Channel Support
Qlogic FAS SCSI
Qlogic QLA 1240/1x80/1x160 SCSI
SYM53C8XX Version 2 SCSI
Symbios 53c416 SCSI
Tekram DC390(T) and Am53/79C974 SCSI
Tekram DC395(U/UW/F) and DC315(U) SCSI
Trantor T128/T128F/T228 SCSI
RDC R6040 Fast Ethernet Adapter
RealTek RTL-8129/8130/8139 PCI Fast Ethernet Adapter
RealTek RTL-8139 C+ PCI Fast Ethernet Adapter
Realtek 8169 gigabit ethernet
Realtek PCIe GBE Family Ethernet Adapter
SEEQ8005
SMC 9194
SMC 91Cxx PCMCIA
SMC EtherPower II
SMC Ultra
SMSC LAN9420 PCI ethernet adapter
STMicroelectronics 10/100/1000 Ethernet driver
ServerEngines' 10Gbps NIC - BladeEngine
SiS 900/7016 PCI Fast Ethernet Adapter
SiS190/SiS191 gigabit ethernet
Silan SC92031 PCI Fast Ethernet Adapter driver
Solarflare SFC4000/SFC9000-family
Sun Cassini
Sun GEM
Sun Happy Meal 10/100baseT
Sun Neptune 10Gbit Ethernet
Sundance Alta
TI ThunderLAN
Tehuti Networks 10G Ethernet
ULi M526x controller
VIA Rhine
VIA Velocity
WD80*3
Winbond W89c840 Ethernet
Xircom 16-bit PCMCIA
Zenith Z-Note
nForce Ethernet

USB Network Adapters

ASIX AX88xxx Based USB 2.0 Ethernet Adapters
CDC EEM
CDC Ethernet support (smart devices such as cable modems)
CDC NCM
Conexant CX82310 USB ethernet port

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UltraStor 14F/34F
UltraStor SCSI
VMware PVSCSI driver
Workbit NinjaSCSI-32Bi/UDE
iSCSI Boot Sysfs Interface

USB support

CF/PCMCIA support for SL811HS HCD
ChipIdea Highspeed Dual Role Controller
Cypress C67x00 HCD
Datafab Compact Flash Reader
Freecom USB/ATAPI Bridge
ISD-200 USB/ATA Bridge
ISP 1760 HCD
ISP116X HCD
ISP1362 HCD
Lexar Jumpshot Compact Flash Reader
OXU210HP HCD
Olympus MAUSB-10/Fuji DPC-R1
R8A66597 HCD
SL811HS HCD
SSB usb host driver
SanDisk SDDR-09 (and other SmartMedia, including DPCM)
SanDisk SDDR-55 SmartMedia
USB 2.0
USB Mass Storage
USB Monitor
USBAT/USBAT02-based storage
xHCI HCD (USB 3.0)

Block devices

Compaq SMART2
Compaq Smart Array 5xxx
Mylex DAC960/DAC1100 PCI RAID Controller
Normal floppy disk
Promise SATA SX8

IEEE 1394 (FireWire) support

Legacy alternative FireWire driver stack
Storage devices (SBP-2 protocol)

Other devices

Microsoft Hyper-V Utilities driver
Davicom DM9601 based USB 1.1 10/100 ethernet devices
GeneSys GL620USB-A based cables
Host for RNDIS and ActiveSync devices
Intellon PLC based usb adapter
MosChip MCS7830 based Ethernet adapters
NetChip 1080 based cables (Laplink, ...)
Option USB High Speed Mobile Devices
Prolific PL-2301/2302/25A1 based cables
SMSC LAN75XX based USB 2.0 gigabit ethernet devices
SMSC LAN95XX based USB 2.0 10/100 ethernet devices
Samsung Kalmia based LTE USB modem
Sharp Zaurus (stock ROMs) and compatible
Simple USB Network Links (CDC Ethernet subset)
USB CATC NetMate-based Ethernet device
USB KLSI KL5USB101-based ethernet device
USB Pegasus/Pegasus-II based ethernet device
USB RTL8150 based ethernet device

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Microsoft Hyper-V client drivers
Microsoft Hyper-V virtual block driver
Microsoft Hyper-V virtual network driver
Microsoft Hyper-V virtual storage driver

The **Disk Actions** chapter explains basic disk actions.

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version**.

The **Technical Information** chapter gives technical information on **Supported CD and DVD Recorders** **and** **List of Hardware Devices Supported in the Startup Mode** and another useful technical information.

Follow this link to obtain **R-Drive Image Contact Information and Technical Support**

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VII R-Drive Image OEM kit

R-Drive Image OEM kit allows system integrators, consultants, and computer assemblers to create special system recovery disks/devices and include them with their fully assembled computer systems. The license for **R-Drive Image OEM kit** allows its licensee to distribute unlimited number of those system recovery devices with its computers provided that a an unregistered copy of **R-Drive Image OEM** is pre-installed on each distributed computer and the **R-Drive Image** software icon is placed on the end-user desktop.

The end user of such computer systems can use those system recovery disks to restore the system files, registry keys, installed programs, etc., to a state the computer system or hardware was initially set up (a fresh setup).

R-Drive Image OEM kit is intended only to restore the original system disk configuration as part of a service or maintenance procedure. Use of this kit to install software on any other computer or system is strictly prohibited.

R-Drive Image OEM kit consists of three components:

R-Drive Image System Recovery Media Creator (R-Drive Image SRMC)

It can create a special **R-Drive Image System Recovery OEM** media device, that is, startup disk(s) that may be used to restore a computer system after a complete failure when it requires a complete fresh setup (system recovery disks). It may be a CD/DVD/USB disk, ZIP drive or any other removable media device.

R-Drive Image System Recovery OEM

Actually, **R-Drive Image System Recovery OEM** is a startup device containing a special **R-Drive Image** startup version with a master disk image. This **R-Drive Image** startup version restores data from a master image only to a hard drive or logical disk of a target system.

R-Drive Image OEM

This is a **R-Drive Image** version similar in its functionality to a conventional **R-Drive Image**.

Note: You need to obtain an OEM license to activate the OEM functionality in **R-Drive Image**. You may obtain a free demo key on the R-Drive Image site to test that functionality. **OEM System Recovery Media** created in the demo mode will perform all the required operations but without actual data recovery. If you want to disable the OEM functionality after tests, simply enter that free demo key once again. The the OEM functionality will disappear.

When you enter the OEM registration key, a new item will appear on the **Action Selection Panel**.

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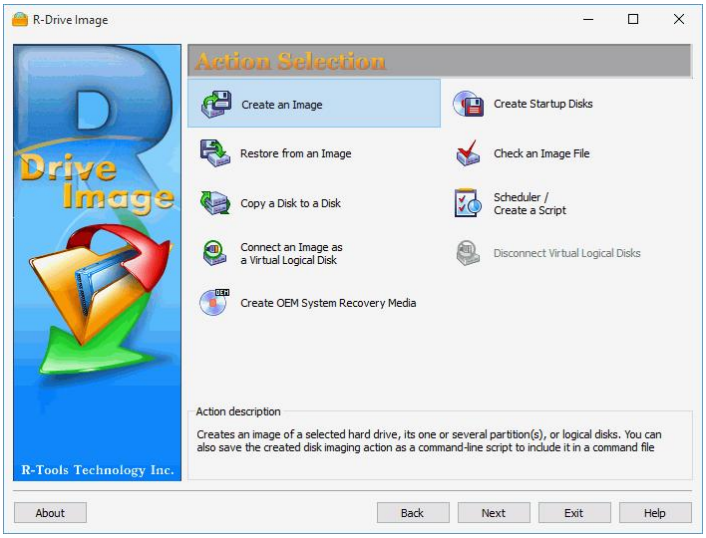
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Restore from an Image
Copy a Disk to a Disk
Connect an Image as a Virtual Logical Disk
Create OEM System Recovery Media
Create Startup Disks
Check an Image File
Scheduler / Create a Script
Disconnect Virtual Logical Disks
Action description
Creates an image of a selected hard drive, its one or several partition(s), or logical disks. You can also save the created disk imaging action as a command-line script to include it in a command file
R-Tools Technology Inc.
About
Back
Next
Exit
Help

R-Drive Image SRMC Features:

- The master image can be placed on the startup disk(s) or on a separate device.
- Flexible data restoring: **R-Drive Image** may automatically find the disk to restore data to, or the user can manually select places for data recovery.

Creating **OEM System Recovery Media** consists of two steps:

1. Creating the master image of the system
2. Creating the startup media

When the user will start the system up with such disk(s), **R-Drive Image** will either restore the system automatically, or ask the user to specify the source and target for system requirement, depending on the options specified during the disk creation.

The **Disk Actions** chapter explains disk actions such as:

- **Create an Image** of a partition, logical disk, or entire hard drive
- **Restore Data from an Image**
- **Copy Disk to Disk** to make an exact copy of one disk on another
- **Connect an Image as a Virtual Logical Disk** **(read-only)**
- **Disconnect Virtual Logical Disks**
- **Check an Image File** to check an existing image file

The **Startup Version** chapter explains how to perform disk actions using the **R-Drive Image Startup Version** such as:

- Create Startup Disk
- Restoring Data to a System or Other Locked Disk
- Create an Image Using the Startup Disks
- Disk to Disk Copy Using the Startup Disks

The **Scheduled Actions, Command Line Operations, and Scripting** chapter explains how to start disk actions automatically at scheduled times/events and create scripts that can be performed from a command line.

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- **Scheduler and Unattended Actions**
- **Scripting and Command Line Operations**
- **Backup sets**

The **R-Drive Image Features** topic tells more about **R-Drive Image**.
Follow this link to obtain **R-Drive Image Contact Information and Technical Support**.

7.1 Create a Master Image

A master image is the image of the hard drive/logical disk or partition which you will used to restore the system.

The safest way to create a master image for a system rescue disk is to set the system up, turn it off, then start it up with the R-Drive Image startup version and write the master image file either to a network drive or to a USB disk. Please note that you have to connect the USB disk before you start up the system.

If you are going to create the master image in the same way as a regular image, it is necessary to understand how **OEM System Recovery Media** searches for the target drives/partitions to restore data to.

Hard drives: **OEM System Recovery Media** identifies drives by their identity info (vendor+model+revision). So, when creating the master image, avoid connecting the source drive to a non-standard drive controller. It may change the drive name and/or size, making it impossible for **OEM System Recovery Media** to identify the target drive correctly when restoring data.

Partitions: **OEM System Recovery Media** identifies partitions by their offset+size and, with lesser priority, by their file system information (file system type and label). if **OEM System Recovery Media** find one object which properties coincide with those in the master image, it believes that it has found the target partition. If there are several same partitions on different drives, **OEM System Recovery Media** selects the target partition by its HDD identity info.

Note: When creating the master image, specify the Image split size option on the **Image Options** panel according to the requirements of the target where you want to store the master image and do not pay attention to the size requirements of the media type you plan to use. When producing the startup disk, **R-Drive Image** will split the image accordingly.

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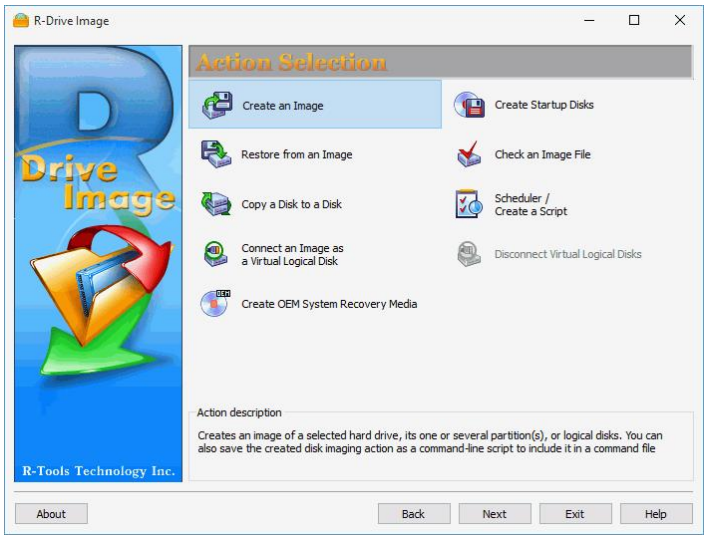
7.2 Create Startup Media

When the master image of the system is created, you may create the startup data recovery disk(s).

To create a startup data recovery disk(s):

1 **Click Create OEM System Recovery Media on the Action Selection panel**


R-Drive Image
Action Selection
Create an Image
Create Startup Disks
Restore from an Image
Check an Image File
Copy a Disk to a Disk
Scheduler / Create a Script
Connect an Image as a Virtual Logical Disk
Disconnect Virtual Logical Disks
Create OEM System Recovery Media
Action description
Creates an image of a selected hard drive, its one or several partition(s), or logical disks. You can also save the created disk imaging action as a command-line script to include it in a command file
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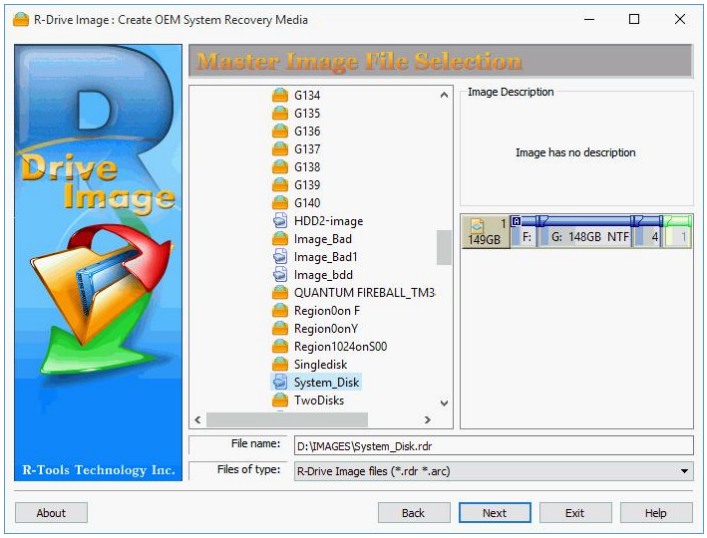
2 **Select the file with the master image on the Master Image File Selection panel and click the Next button**



When you click the file, you may view its content below.

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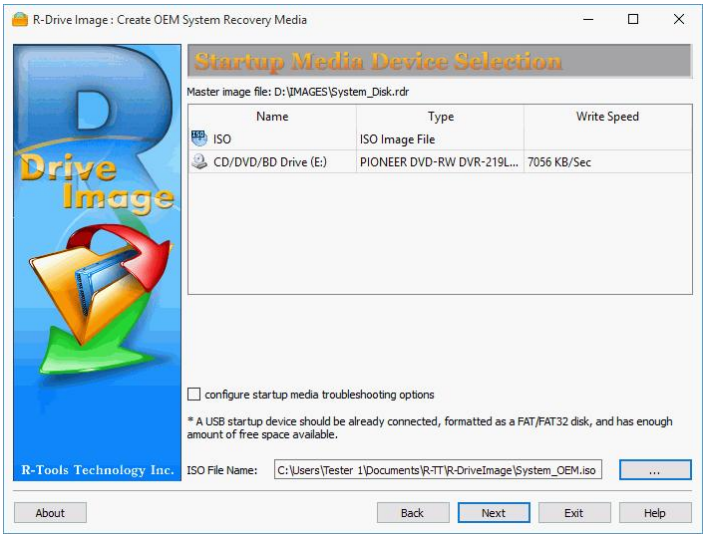
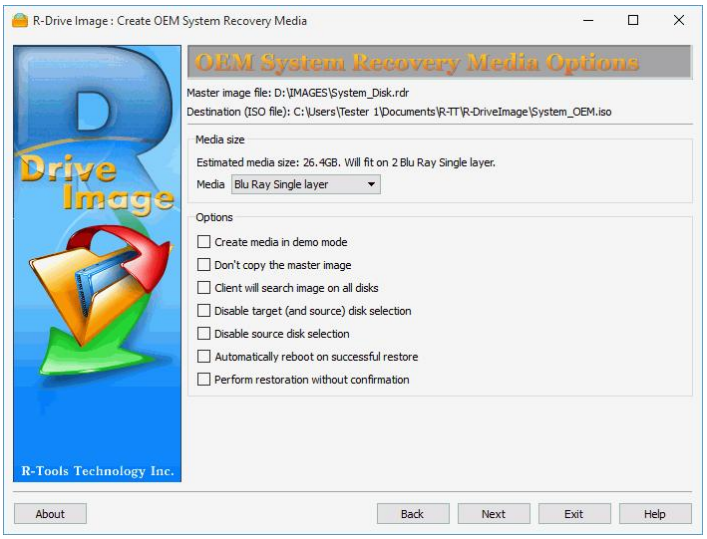
3 **Select the device you want to use to create the the system recovery disks on the Removable Media Device Selection panel and click the Next button**



If you have problems with starting the computers up from the **R-Drive Image** startup disks, select **configure startup media troubleshooting options**. Then the **Startup Media Troubleshooting Options** panel will appear. You may configure these options to eliminate those problems.

4 **Specify the options for the system recovery disks on the OEM System Recovery Media Options panel and click the Next button**



OEM System Recovery Media Options

Media:	Select.the media type you would like to have. **R-Drive Image** will automatically split the data accordingly.
Options	
If this check box is selected	
Create media in demo mode	**R-Drive Image** will create a demo recovery disk. During the recovery process, it will be possible to perform all the required operations without actual data recovery. The license count will not be decremented. .

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Don't copy the master image	**R-Drive Image** will create the startup version only without copying the master image to the media. Select this option if you want to store the master image separately from the **R-Drive Image** startup version. The master image may be stored on a hidden partition of the hard drive.
Client will search image on all disks	**R-Drive Image** will search for the master image in on all disks (in their root only) in the system rather than on the startup disk only.
Disable target (and source) disk selection	the user will not be able to specify the target object to which the data will be restored if **R-Drive Image** could not find the target for data recovery automatically. If this option is clear, the user could click the **Back** button on the **Confirm Operation** panel and manually select the target to which the data will be restored. When this option is selected, the Disable source disk selection option will also be selected.
Disable source disk selection	the user will not be able to select the source disk/partition in the master image manually. If this option is clear, the user could click the **Back** button on the **Confirm Operation** panel and manually select the source for data recovery in the image.
Automatically reboot on successful restore	**R-Drive Image** will open the disk tray for the data recovery CD disc, and restart the system automatically upon data recovery.
Perform restoration without confirmation	**R-Drive Image** will not require action confirmation from the user. If **R-Drive Image** finds the drive/disk corresponding to the master image, it will start data recovery automatically. If not, either an error message will appear, or the user will be asked about the target for data recovery, depending on the Disable target disk selection option.

If you want to start data recovery automatically, select the two last check boxes.

5 Click the Start button on the Processing panel

> R-Drive Image will start creating the startup data recovery disk(s)

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